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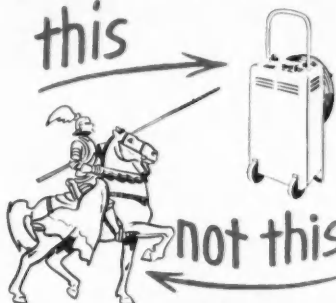
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EDITORIAL CONTENTS

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FEATURE ARTICLES

Four Factors Cut Truck Investment.....	51
Judging Accident Responsibility	52
Legislative Round Up—1951.....	55
Winter Maintenance North of the Border.....	56
Time to Convert to the ATA Connector.....	59
Heat Simplifies Spray Painting.....	62
LP Gas Proves Out As Motor Fuel.....	64
Overhead Valve V-8 Powers Lincoln.....	66
GM Puts Bee on Delivery Costs.....	67
Picked Pix of Interest to Fleets.....	71
You Saw It First In CCJ—1951 Index.....	72
How To Check the Distributor.....	74
Screen Painting Saves 936 Man-Hours.....	76
Bus Men Discuss "Standard Pars".....	110
Beck Revises Intercity Coach.....	114
New White Freightliner Uses Aluminum.....	152

DEPARTMENTS

Conference Corner	6
At Your Service	10
The Overload	20
CCJ Bulletin Board	23
CCJ Reports	27
Washington Runaround	31
Detroit Dispatch	37
Laugh It Off	41
Shop Hints	60
Mechanics Retraining Guide	74
Free Literature	78
New Products	79
New Truck Registrations	82
Introducing	84
Fleet Notes	94
Factory Flashes	98
Local News	100
Fleetman's Library	144



COMMERCIAL CAR JOURNAL

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JOURNAL

CCJ

READER DIGEST

Four Factors Cut Truck Investment

Today, as never before constant skill is required by the designer and purchaser of motor vehicle equipment in the interest of keeping capital investment to a minimum. Vehicle engineering for safety, for operating efficiency, for minimum maintenance must be balanced by skillful operation by the driver as well as the owner. A progressive fleetman provides some intelligent answers to this problem. See page 51.

Judging Accident Responsibility — A Test

Many fleets are teaching the modern defensive driving technique but, paradoxically, fail to judge their drivers' accidents on the same basis. They employ the legal—or who hit whom—standard of judging, which prevents cutting accident rate by not stressing the fact that drivers' contribution to an accident is as bad as their direct cause. The author supplies a short test. Can you pass it? See page 52.

Winter Maintenance North of the Border

Fleets in the northern states have hard going this time of the year. Many wonder how their Canadian cousins manage under similar and much worse conditions. For many useful hints see page 56.

Heat Simplifies Spray Painting

Have you looked into the new system of hot spray application? Experts claim that heating paint at or near the gun during application provides a thicker coat without danger of sagging, results in a smoother surface with less wastage, and improves application control with either lacquer or varnish. New heaters have made this system readily adaptable to the fleet shop. See page 62.

LP Gas Proves Out As a Motor Fuel

One of the foremost individuals in the LP gas industry offers positive proof that liquified petroleum fuels are practical for commercial vehicles. From the standpoints of reduced fuel costs, higher power output, longer lubricating oil life, reduced engine wear rate, LP gas offers definite advantages over gasoline fuel, according to the author. See page 64.

Gas Puts the Bee on Delivery Costs

"Transportation is one of the last big areas where management can make substantial gains in economies," says the author of this CCJ feature, and he sets about to show retail milk delivery fleets can make a closer check with regard to profitable route size and distances, a replacement vehicle practices, etc. Other retail delivery fleets can profit from this data. See page 67.

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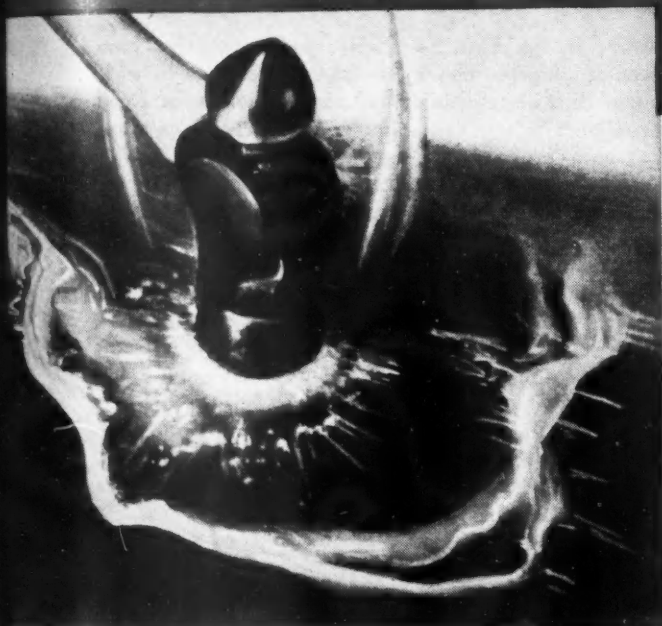
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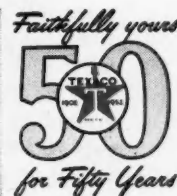
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Lubricants and Fuels

FOR THE TRUCKING INDUSTRY



CONFERENCE C O R N E R

PRESENTING THE EXPERTS' VIEWPOINTS ON TIMELY SUBJECTS OF INTEREST TO FLEETS

Subject: Maintenance Practices

By **W. W. Squier**

Director of Education
Sun Electric Corp.

"What is a good balance between preventive and corrective maintenance work?" The cost of poor performance, poor economy, road failures and vehicles out of service, to say nothing of shipping losses, are all very high and it is against these that we must weigh the costs of maintenance services. Looking at maintenance services, they appear to divide themselves into two parts: 1. Repairing inoperative units. 2. Applying preventive services.

In the first of these, repairing inoperative units, the mechanic's work may be clearly laid out for him because some particular part or parts are obviously broken or worn out and a clear and concise work order may be written up on the job and the work assigned to a mechanic. Sometimes, however, it is not run properly, and by simple deduction, it is obvious that one or more of the operating parts of this engine are not performing their function. It is in instances like this that a fleet operator can lose a lot of money or save a lot of money, depending upon how his maintenance work is managed. In one instance a mechanic may hunt around in the dark, blindly changing one part after another, spending a lot of time and replacing a lot of parts without locating the real cause of the trouble and correcting it. Or, what is worse, he may partially correct it, and send the vehicle out only to have a road failure, due to the same cause, a second or third time.

In preventive service work it is extremely important that the mechanic rely on fact finding procedures rather than guesswork. Preventive maintenance, unless based on scientific testing, often results in "over-maintenance" of some items and "under-maintenance" of others. Changing parts at specified mileages without testing is no longer considered entirely satisfactory, especially as far as electrical units are concerned. Frequently we find a mechanic changing electrical units such as voltage regulators, coils, switches, etc., with no results because the trouble lies in a poor ground or some other circuit difficulty which could only be located by suitable tests.

A testing routine can save maintenance dollars by taking costly guesswork out and substituting accurate

testing in its place. For many years mechanics have been leaning too heavily on their experience in what might be called the analytical part of their work. Good experience is very valuable; however experience alone has been proved to be inadequate and too costly a substitute for an accurate and complete testing routine, to locate not only the causes of the trouble being experienced, but also to uncover the types of information about the vehicle which would lead to a really sound preventive maintenance program. Many mechanics have failed to keep pace with the advances made in the industry, and, because no individual likes to point out his own weaknesses or shortcomings, many unwise maintenance expenditures are covered up, and in this way do not come to the attention of top management who of course are interested in saving money and operating maintenance shops at peak efficiency.

The new higher compression engines, and the increasing importance of the performance of their electrical units, have introduced more and more electrical work into fleet maintenance. No matter how experienced a man is he cannot see how much current is flowing through a wire, he cannot see the setting of the voltage regulator (which is extremely critical), he cannot see, feel or hear the air-fuel ratio which is moving down through the carburetor into the manifold accurately, to properly adjust a carburetor. He cannot, by external observation alone, determine the condition of a battery, generator, coil or condenser. All of these items must be tested with scientific equipment which is known to be accurate, and the mechanic or technician must follow a prescribed routine which will make it possible to do this testing with a minimum expenditure of time. This testing routine must become a part of the standard maintenance program.

One large fleet user recently reported a savings of over \$5000 a month on labor alone by utilizing scientific test equipment and a good operator for the purpose of controlling the quality and cost of his maintenance work. In this instance, the labor cost of inspecting each of the fleet user's 800 vehicles was reduced by \$6.25, in addition to the labor and parts saved by eliminating unnecessary parts-changing. Another operator reported an increase in fuel economy of over 50 per cent in the branch which was using test equipment to accurately set all engines up to manufacturer's standards. These reports are typical examples of the way alert and up-to-date operators are taking advantage of this more scientific approach to their maintenance problems.

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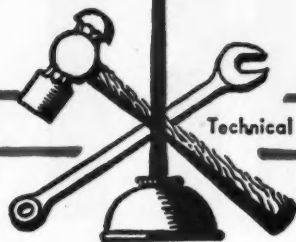
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PER MILE**
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operation

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At Your Service

By M. K. SIMKINS

Technical Editor, Commercial Car Journal



Don't Let Out of Round Cylinders Throw You

Don't let out of round cylinders cause you undue consternation—unless new rings cannot follow the taper. Allowable limit for out of roundness is given at .002 in. by some manufacturers, yet many times rings will seat properly when the cylinder is as much as .010 out of round. This is in part due to the fact that after the cylinder head has been installed and the engine is warmed up, distortion may disappear and rings will be able to control oil and combustion gases.

Engineers have stated that there is no such thing as a round cylinder. Actually no one knows just what shape the cylinders take on under actual operating conditions. High temperatures of the cylinder walls are not dissipated evenly in any engine, especially after cooling system corrosion sets in, and the resultant variation in expansion is bound to produce some distortion. This is not as bad as it seems because rings properly installed on proper pistons will conform to the shape of the cylinder—within reason—as the oil consumption rate and the compression pressures will attest.

This does not mean that care should be disregarded in installing cylinder heads or that torque wrenches are obsolete. Nor does it mean that bad distortion should be ignored. Simply make a check of your own engines to see just what degree of out of roundness you can tolerate and still get proper control from your rings. Possibly you have been reboring to return the shape of the cylinder, only to find the same distortion next time the engine is down.

Contact Point Pitting

The pitting of contact points with our present ignition systems is considered a more or less normal condition. Because of varied driving habits with regard to speed, starts and stops, use of starter, etc., no method has as yet been devised to automatically balance the condenser to the ignition system under all conditions. As a result pitting in various degrees seems to be a constant process.

The condenser has much to do with the rate of point build up or pitting, and once the ignition system is out of balance, accelerated wear takes place. On the other hand the driving speeds will influence

the capacity of the condenser and therefore effect point pitting. Continuous fast driving, for example, requires a low capacity condenser while low speeds with long idling periods require a higher capacity condenser.

In some cases the mechanic can modify the capacity of the condenser and therefore reduce tendency toward pitting. With a build up on the positive side of the points the mechanic should lengthen the distance between the low tension lead from the coil to the distributor, and the high tension lead from the coil to the distributor. Or it may be possible also to bring both of these leads closer to the engine block or vehicle frame.

If the metal transfer is on the negative side of the points, the low tension coil lead to the distributor and the high tension lead to the distributor can be separated, or both can be moved further away from the nearest ground. Lengthening of the condenser lead may be resorted to in a move to balance the capacity of the condenser to the ignition system.

Check—Before Converting to LP Gas

Before you convert an engine to LP gas operation, you must be sure that 1, it can be converted satisfactorily; 2, it will show improved performance. Several factors enter into this. First, the engine must be in good mechanical condition. Second, compression pressure must be sufficiently high to handle the butane or propane fuel. Authorities warn that no engine should be converted unless it shows at least 75 lb per sq in. combustion pressure . . . if you are to enjoy the fuel economy that is possible with liquified gas fuel. You will get best results in engines developing 125 to 150 lb per sq in. pressure, and there should be not more than 10 per cent variation between cylinders.

Compression ratios of over 7.5 to 1 are recommended with LP gas operation. And here is the rub. Most gasoline burning engines (at least older models) have much lower compression ratios. It is not wise to raise the CR over one point in the interest of long engine life. So beware before you attempt to convert. Reason, of course, is the fact that those engines designed for gasoline at low CR may not be suffi-

(TURN TO PAGE 14, PLEASE)

Duty Service

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Continued from Page 10

ciently strong to withstand increased pressures. Cylinder heads and bearings are the most critical limiting factors in this conversion.

So before you convert, check with the manufacturer and get his suggestions. For many of the benefits resulting from LP gas operation will be offset if you must frequently replace bearings or cylinder heads and other engine parts.

Traveling Diesel School

The Detroit Diesel Engine Division of General Motors is conducting a training program for owners and operators of diesel engines in the form of a traveling school which meets the operator in his own back yard. Over four tons of training aids, including engines, cutaways, sub-assemblies, movies, slide films and charts are housed in a diesel-powered truck and set up at various points from coast to coast. The course offers practical knowledge and proper servicing techniques on GM diesel engines and is designed to help owners get maximum efficiency out of their units. Your GMC dealer can provide complete details.

Cold Weather Brings Dilution

These are the days when crankcase dilution problems face the fleetman. Low water jacket temperatures, low crankcase temperatures combine during winter operation to permit diluents that will contribute to early wear of engine parts.

When cylinder walls operate at low temperature because of excessive cooling, they act as condensers for the combustion gases, permitting liquid water, unburned fuel, soot carbon and lead salts to wash past the rings into the crankcase. Then, with low crankcase temperatures these volatile contaminants cannot be purged from the oil through the ventilating system. Eventually these blowby products coagulate and separate out as sludges. In addition, in the process of passing down the cylinder walls, combustion byproducts wash down the normal film of lubricant so that scoring and wear of rings and cylinders result.

There are several methods of raising water jacket temperatures, all of which have been covered in previous articles. Best possible combustion efficiency will be enjoyed at temperatures ranging from 160 to 180 deg. It should be noted, however, that this is actual water jacket temperature, not necessarily that registered on the dashboard gage. Actually gages simply indicate cylinder head temperature, which may differ from water jacket temperatures due to poor heat distribution through some makes of blocks.

Crankcase temperatures should be kept between 180 and 200 deg to facilitate evaporation of water and fuel dilution. Here again it should be noted that crankcase temperatures vary over a wide range between idle and high road speeds. Insulation of the crankcase is one of the most effective means of smooth-

ing out these fluctuations. In addition it permits faster engine warm up, one of the prime factors contributing to crankcase deposits and dilution.

Particular attention should be paid to maintaining combustion at peak efficiency especially during cold weather operation. Often the temperature of the intake manifold can be raised so that the incoming air does not chill the mixture and upset the air-fuel ratio. Relocation of the air intake so that heated air enters the port has been employed in very cold regions in a move to improve combustion efficiency. Frequent checks of the air-fuel ratio will pay off. A ratio of between 12:1 and 13:1 at idle; 12.5:1 at full throttle; and 13:1 to 14:1 when cruising at part throttle is recommended. A close control can only be obtained with a good carburetor and a clean air filter. Frequent checks of the ignition system should be made in the interest of assuring proper spark at the proper time and a utilization of the entire fuel charge.

From the driver's standpoint, idling of the engines should be reduced during cold weather; warm up periods (with the engine at idle) are frequently not effective since many engines will not heat up at idle. Jack rabbit starts, pumping of the accelerator, careless use of the choke, and lugging under load all contribute to crankcase dilution and accelerated wear of engine parts.

Amyl Nitrate in Diesel Fuel

Diesel fuel ignition quality, supplied by the addition of amyl nitrate, compares favorably with that inherent in a clear fuel of the same cetane number for a wide range of diesel engine operating conditions, according to Merrill J. Anderson and Grover C. Wilson of the Ethyl Corp.

In a paper presented before the National Fuels and Lubricants Meeting of the Society of Automotive Engineers in Chicago, the authors reported that overall cetane-number requirement for the full-scale engine tested is greater for low-load, low-speed operation than for high-speed, high-load operation. Amyl nitrate provided ignition quality which was effective in both ranges of engine operation.

It is common knowledge that the ignition-quality ratings of diesel fuels can be increased by the addition of amyl nitrate. The Ethyl Corporation paper clearly shows, moreover, that beneficial effects for the operation of full-scale engines can be realized from this improvement in rating. The benefits so achieved assume considerable importance when it is remembered that all signs point to a steady increase in demand for diesel fuels. Distillates from cracking processes will become an increasingly important source of supply for diesel fuels.

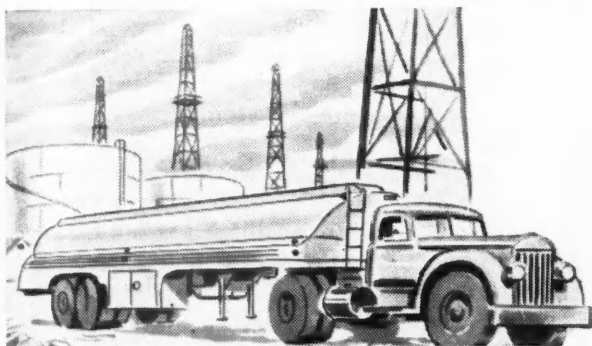
While cracked distillates have the advantages of lower pour point and a higher heating value per gallon, in general they are lacking in diesel-fuel ignition quality, the authors stated. If they are to be used, then, this quality must be supplied. One of the most desirable means is through the addition of a small amount of an ignition accelerator.

"The addition of small quantities of amyl nitrate to distillate stocks should materially increase supplies of diesel fuels by permitting the use of greater quantities of cracked distillates. Better uniformity of fuels can also be obtained and blending can be done with a consideration for other important properties," they concluded.

Whatever your hauling requirements...

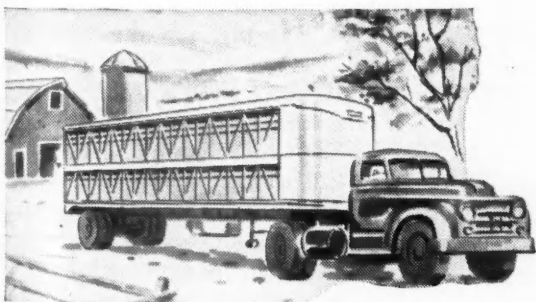
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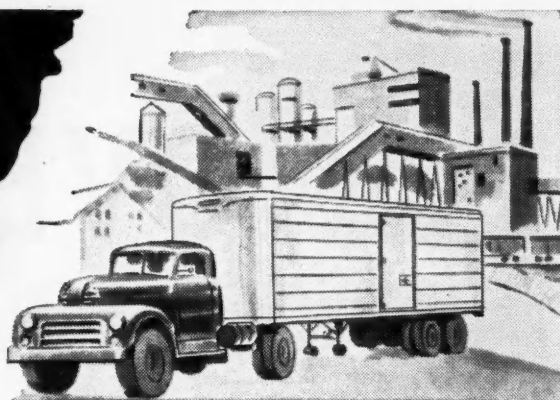
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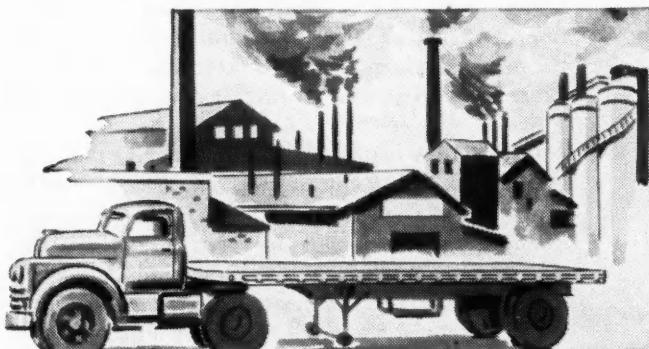
★ MISCELLANEOUS

From industry to agriculture, from a simple dolly to an unusual tank type trailer, the Trailmobile line is complete. Other models include dump trailers, dump chassis, interchangeable drop frame chassis and 4-wheelers. The model shown is a cattle rack. You will find a Trailmobile to fit your special hauling problem.



★ FREIGHT VANS

The Trailmobile van line includes closed and open top models for general freight hauling; insulated and refrigerated bodies for perishable foods; rack type bodies for grain and livestock and drop frame vans for moving or bulk hauling.

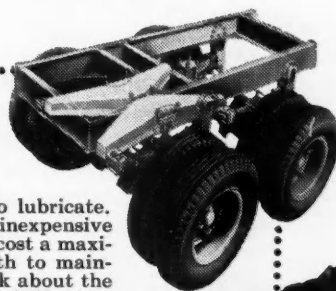


★ PLATFORM TRAILERS

Tested models available for hauling heavy concentrated loads or light bulk loads. Platform trailers are versatile and indispensable for many transportation jobs in industry and on the farm.

The Famous TRAILMOBILE Tandems

Only two moving points to lubricate. Trailmobile Tandems are inexpensive to operate, easy to service, cost a maximum of only \$2.90 a month to maintain for a 5-year period. Ask about the new Trailmobile Guaranteed Tandem Plan.



*The Trend
is to*

TRAILMOBILE

TRAILMOBILE INC.

Friendly Service From Coast to Coast

Cincinnati 9, Ohio

Berkeley 2, California

The OVERLOAD

E D I T O R I A L C O M M E N T

Just Once: Let's Be Too Soon Instead of Too Late

LAST month, in a quick recap of the then-just-issued interim report by the Senate Subcommittee on Domestic Land and Water Transportation, we tried to be a little subtle. We stated that we believed every truck operator could detect the dangers involved without further editorial comment. Now we wonder.

It is unfortunate that the history of the truck industry has all-too-often been characterized by the expression "Too little and too late." A perfect example was the case of the New York "Ton-Mile" tax. Months in advance this publication and various trade associations had warned that it was coming, what the provisions would be, and that united action was urgently needed. The united action failed to materialize but the bill did.

After the bill was passed there was a different story. All over the state, groups that had once been divided were galvanized into united action. Funds poured in not only from operators within the state but from many outsiders as well. An injunction was successfully procured, and real action is even now underway. But how much better it would have been if the action had come *before, instead of after!*

This is not a criticism of the industry, but rather an appeal to approach legislative matters in a different light. It's only natural for the laundry around the corner or the coal dealer down the street to pass over comment such as these with a remark like this: "Phooey. That doesn't concern me—that's just for the big over-the-road boys." Sometimes that reasoning is right. But sometimes, as in the case of New York tax, these same hold-outers find that the legislation that "didn't concern them" hits their pocketbook just as deeply as the other guy's.

The Bricker report, as the interim document is now known, concerns every fleetman—especially *the private carrier*. It runs 87 pages, most of it of vital interest to every truck operator. Comment on it by the American Trucking Assns. (most complete so far) runs 12 pages. Both are far too long for briefing here. But here are a few things every fleetman can do:

1. Read again the brief but salient report published on page 126 of the December issue of CCJ.

2. Procure a copy of the report itself (82nd Congress Report No. 1039—Progress Report pursuant to S. Res 50) by sending 25 cents to the U. S. Government Printing Office, Washington, D. C.

3. Procure a copy "The Truck Beat," Vol. 1, No. 3 just released by American Trucking Assns., Inc., 1424 16th St. N. W., Washington, D. C.

4. Request similar data available from the National Council of Private Motor Truck Owners, Inc., Kass Bldg., Washington 5, D. C.

5. Keep in touch with your local truck association.

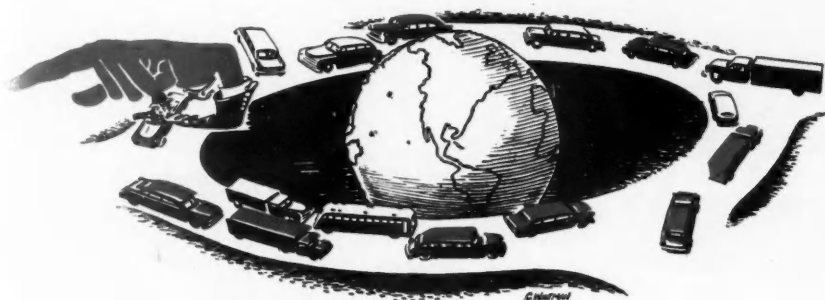
6. Watch for future developments as reported in CCJ.

7. On an informed basis, be ready for real action, if and when it is needed.

8. Remember that while the report is unofficial it is a strong straw in the wind as to what may be forthcoming in 1952 legislative maneuvers; that to date it is potently pro-rail; that if its policies should be adopted, it could greatly increase your cost of doing business, might even wipe out existing transportation facilities as now set up by some private carriers.

At the moment there is no fire but the smoke on Capitol Hill gets thicker by the moment.

Bart Rawson
Editor



Show Your Hand!

Ever realize, when you pull onto the highway, that there are 50 million cars, trucks and buses behind you? Some of them want to go the same place you do and at about the same time. Some of them want to go faster; some want to go slower, and some don't give very much of a damn whether they do it safely.

That's where you as a professional driver fit into the picture. You can do a great deal to make your particular stretch of the road safer and at the same time dodge the casualty figures that have a bad habit of creeping up on unwary individuals.

How? By "informative driving." That's the type of driving that keeps fenders separated not only through skilful techniques, but by the announcement of moves via hands, lights, signals, etc.

It really pays to advertise, especially when you are in front of some hot-rodder who wants to make Pittsburgh tonight . . . or when you are behind some bloke who expects to count the insulators on the telegraph poles.

If you would be an "informative driver" never let the other guy guess what you're

going to do—*show* him with the proper signals and keep him off your tail. In starting, stopping, backing, turning, pulling out, slowing down, braking—in any operation that involves a change—give the guy a hand.

Your responsibility doesn't end when you leave the cab. Emergency signals must be employed when you stop on or near the highway. Properly placed flags during daylight hours and official flares at night will advertise your presence to others and keep them out of the obituary columns.

It's the courteous thing to do—but it's also a matter of self protection—to establish better traffic relations. If you can keep out of the other man's way . . . good. If you can't, signal. If you can keep from scaring hell out of him with a "boner" or making him mad, you have contributed to a safer stretch of the road.

Today, we have too many vehicles going too fast over too few and too narrow roads, and the only way we can keep out of the muddle is to put more skill and less overconfidence in this business of driving.

Reprints of this message are available at nominal cost for your driver rooms or shop bulletin boards. Write the editor.

Ross HYDRAULIC POWER STEERING...SINCE 1942

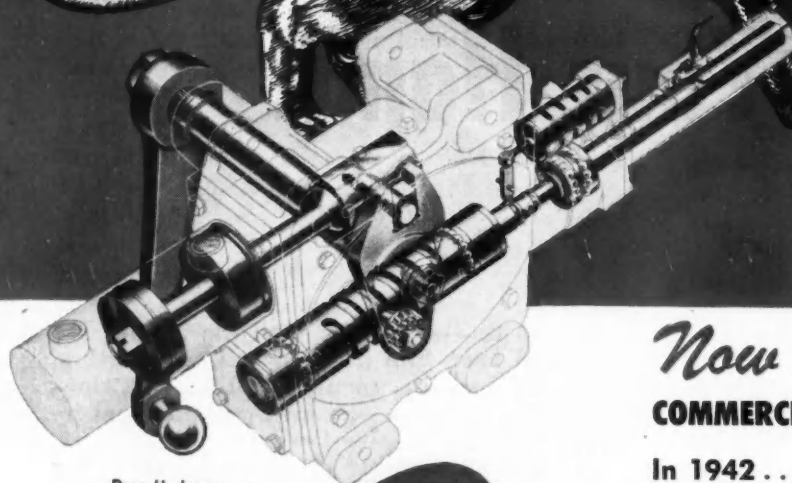


*Alert...
Responsive...*

POWERFUL...



The LION... "King of Beasts"... fully ten feet long from nose to tip of tail and weighing five hundred pounds—Alert, Responsive, **POWERFUL**



Ross Hydrapower
Model HP-70

HYDRAPOWER

Ross

Cam & Lever STEERING

ROSS GEAR AND TOOL COMPANY • LAFAYETTE, INDIANA

Now... **EASIER, SAFER STEERING FOR
COMMERCIAL VEHICLES AND PASSENGER CARS**

In 1942... *Ross hydraulic power steering* was chosen to solve the Army's then toughest steering problem—the 50-ton tank retriever.

One of the latest developments in Ross' Hydrapower steering program is the *Model HP-70* pictured above.

Not only does *Ross Hydrapower* take the "Lion's share" of the physical effort out of steering—with increased safety—but *Ross Hydrapower* gives in fullest measure the alert, responsive quality known as "road sense" which has been an outstanding characteristic of *Ross Steering* for almost a half century.

At present *Ross Hydrapower* is "in uniform" with most current production devoted to military needs. As government requirements permit, *Ross Hydrapower* will bring new steering ease, safety and satisfaction to additional commercial vehicles and passenger cars.

ccj REPORTS

on News of the Industry

New York Associations Consolidate

Following three months of intensive work, merger of the New York State Motor Truck Assn. and the Motor Carrier Association of New York has been approved by the joint boards of directors. Ratification by the full membership of both organizations was expected soon.

The new organization, to be known as the Empire State Highway Transport Association, Inc., will have its temporary headquarters at 30 Vesey St., New York City, and will be relocated in Albany, N. Y., as soon as feasible.

Executive personnel of the new organization will be under a managing director to be selected. The director of industrial relations will be Joseph Adelizzi, formerly with the Motor Carrier Assn. of New York. Directing the public relations activities will be Frank B. Kutz, formerly of the New York State Motor Truck Assn. Others on the staff include W. Foster Banks, as director of the service and regulatory department, and Joseph Traina, as traffic manager in charge of tariffs.

ICC Leasing Rules Upheld

A decision by the U. S. District Court at Birmingham, Ala., has been handed down dismissing the suit being brought by the American Trucking Associations against the Interstate Commerce Commission. The commission has outlawed the leasing of truck and driver for periods less than 30 days.

The court order establishes the right of the ICC to regulate leasing of vehicles by for-hire carriers as well as upholding the leasing rules. A study is under way to determine the advisability of carrying an appeal to the United States Supreme Court.

For the fourth time since the "Ex Parte MC 43" leasing rules were to have taken effect, the commission

has moved the effective date to Feb. 1. The postponement was made in response to a request made by the U. S. District Court for Indiana.

Penna. Bill Goes to Governor

On Dec 19 the Pennsylvania State Senate passed its long-delayed "Fair Truck" bill by a majority of 31 to 18. Months ago the House had passed it by a majority of 112 to 79. The bill then went to Governor Fine, carefully timed by opposition strategists to reach his desk just after the legislature adjourned. This gave the Governor 30 days in which to act, during which time he had announced that further hearings would be conducted.

If and when the bill, which has been the subject of periodic discussion for more than 10 years, is passed it will up the state's present 45,000 lb gvw limit on any type tractor-trailer combination to 48,000 lb on single axle trailers and 60,000 lb on tandems. There is also a steep increase in penalty provisions.

Nation Needs Scrap Now

Late last month Defense Director Charles E. Wilson called a special meeting of business magazine editors to emphasize the drastic and immediate need for scrap. Wilson stated that while steel capacity had increased greatly during 1951, many plants were running on a day-to-day, hand-to-mouth scrap supply. Continued bad weather, causing delays in scrap deliveries, could have an immediate effect on steel output.

It is urged that every fleet operator survey his shop for actual and possible scrap. Call in top management if necessary. Consider obsolete machines. Old electric motors contain copper and other needed materials as well as steel.

(TURN TO PAGE 194, PLEASE)

DATES and DOINGS

JAN. 14-18—Annual Meeting of Society of Automotive Engineers, Book-Cadillac Hotel, Detroit, Mich.
JAN. 15-18—31st Annual Meeting Highway Research Board, National Academy of Sciences, Washington, D. C.
JAN. 23-25—American Transit Assn., Region 4 Meeting, Atlanta Biltmore Hotel, Atlanta, Ga.
JAN. 23-26—Motor Truck Assn. of So. California and Truck Owners Assn. of California Joint Convention, Coronado Hotel, Coronado, Calif.
JAN. 27-30—11th Annual Convention, Truck-Trailer Manufacturers' Assn., Hotel Shamrock, Houston, Texas.
JAN. 27-30—National Automobile Dealers Assn. Annual Convention, 34th Street & Park Ave. Armory, New York, N. Y. (Equipment exposition, Grand Central Palace, Jan. 26-29).
JAN. 28-30—American Transit Assn., Region 6 Meeting, Buccaneer Hotel, Galveston, Texas.
FEB. 4-7—Silver Jubilee Anniversary Exposition of Automotive Accessories Manufacturers of America, Grand Central Palace, New York, N. Y.
FEB. 7-8—National Council of Private Motor Truck Owners Inc., Annual Meeting, Hotel Statler, Washington, D. C.
FEB. 14—Empire State Highway Transportation Assn. Annual Dinner, Hotel Statler, New York, N. Y.
FEB. 26-28—National Transport Vehicle Show and Fleet Maintenance Exposition, W. 62nd St. & Columbus Ave., Armory, New York, N. Y.

FEB. 28-29—American Transit Assn., Region 1 Meeting, Hotel Statler, Boston, Mass.
FEB. 28-MAR. 2—Pacific Automotive Show, Pan Pacific Auditorium, Los Angeles, California.
MAR. 18-21—American Transit Assn., Region 3 Meeting, Carter Hotel, Cleveland, Ohio.
MAR. 20-23—10th Annual Southwest Automotive Show, Sam Houston Coliseum, Houston, Texas.
MAR. 22-APR. 6—Chicago International Trade Fair, Navy Pier, Chicago, Ill.
MAR. 24-28—American Transit Assn. Region 5 Meeting, Chase Hotel, St. Louis, Mo.
APR. 1-4—Greater New York Safety Council Annual Convention, Statler and New Yorker Hotels, New York, N. Y. (Headquarters—Hotel Statler).
APR. 7-9—Seventh Annual Meeting and Lubrication Show, American Society of Lubrication Engineers, Hotel Statler, Cleveland, Ohio.
APR. 7-10—American Gas Assn. and Edison Electric Institute Joint Motor Vehicle Committee Annual Meeting, Benjamin Franklin Hotel, Philadelphia, Pa.
APR. 25-28—New England Regional Automotive Show, Mechanics Bldg., Boston, Mass.

only electric brakes
 can give you
precision synchronization for
SAFE STRAIGHT-LINE BRAKING

With Warner Electric Brakes you get instantaneous, *uniform* braking of all wheels on both the tractor and trailer. There is no time-lag in the action at any point . . . you have *precise* synchronization!

Reason for this is that your braking is controlled and operated *electrically* . . . with lightning speed! No matter how far the rear trailer wheels are from the driver's seat, braking power is applied instantly. Just

touch the control and you have immediate response of *all brakes* at the same time . . . in the exact degree of power desired.

This precisely synchronized *electric* action means smooth, *straight-line* deceleration and stops. Tractor and trailer act as a single unit to eliminate skidding, diving, sliding, jack-knifing and bring you a new high degree of braking safety. Send today for new factual folder described at right . . . it's free!

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ELECTRIC BRAKES
 FOR TRUCK TRAILERS

HERE'S HOW ELECTRIC



"WARNER WAY" . . . all brakes reach full power together to keep tractor and trailer in line . . . whether for gradual or fast emergency stops. Here's safe, *straight-line* braking.

WASHINGTON RUNAROUND

by KARL RANNELLS Washington Correspondent

A Look at 1952

From a general viewpoint, the outlook for the trucking industry during 1952 is relatively good. National production of goods and services is running at a new high rate of \$235 billion annually. The rate is still rising. It is officially estimated that industrial production will increase by at least 10 per cent during the current year.

The generally accepted prospect is that production of most non-defense types of goods will run at around 50 per cent levels during the first half. This has only small bearing on probable highway freight volume. It merely means that highway carriers will be getting more military type cargoes and less civilian. Reports to the Defense Transport Administration clearly reveal an "uptrend" in highway freighting. It is estimated that this volume will have increased by another 10 to 15 per cent by spring.

On the other hand, there seems little doubt that it will be increasingly harder to get new rolling equipment, also repair and replacement parts, including batteries. But tires are expected to be in good supply with most rubber controls discarded as of Jan. 1. And more synthetic will have to be used in larger sizes.

Also, from the governmental angle, the Defense Production Act is expected to be extended, though perhaps in modified form. This is generally seen now as meaning that most controls on wages, prices, services, and materials will be continued through 1952 and into 1953. On the eve of another session of Congress, it does not now look as if there will be any changes in the tax picture.

Million Trucks Next Year

Defense Production Administration has set its sights on a production of at least 1,000,000 trucks during 1952 in view of the rising volume of highway freight. On a longer range basis, a minimum of 1,200,000 vehicles a year is seen as the annual need. It is reliably estimated that more than one-half of trucks in operation are 5 years or older with 13 per cent at the 14 years or older stage.

National Production Authority had allocated enough steel for the first quarter 1952 to permit an estimated 240,000 unit output. A steel plate shortage arose and the truckmakers were told that their biggest need, steel plate, would be only 60 per cent of needs. The alternative is use of conversion steel at an estimated extra cost of up to \$50 a ton. However, NPA now expects to be able to make sufficient allotments during the last half to meet the 250,000 per quarter goal.

Production of 96,000 truck bodies were authorized during the first quarter. This rate is generally adequate

to meet trucking needs but materials allotments may have to be increased since manufacturers have been digging into inventories to maintain this rate.

Truck trailer manufacture was authorized at 14,500 units for the first quarter, not counting military and export needs. Officials plan to increase this number by 1500 to 16,000 for the second quarter. Indications are that another small increase will be forthcoming for the last half.

Government Payments Slow

American Trucking Association is moving to find out what is causing one of the truckers' biggest headaches and to find a cure—slow government payment for its hauling contracts. And unless it is cured, the situation will be serious for many firms who generally must pay their bills on a 7-day basis. It is increasingly important as freight volume shifts from civilian to defense type cargo.

More than one-fourth of highway freight is direct government cargo, the percentage running much higher in some cases. Some of the bills, according to complaints, have run nearly a year with four months being about the average wait. ATA has mailed out questionnaires to truck operators, hoping to find out where the trouble is and what can be done about it.

18 New Mail-Haul Contracts

More mail-haul contracts have been awarded truckers. Announcement of 18 new contracts during November brought the total to 201 since the change-over for short-hauls began. No additional contracts were scheduled for letting during December because of the rush of holiday business.

Postal officials say the trucking routes are working out even better than had been expected—both from a financial and service standpoint. Cost to the government has not only been reduced, it is now definitely shown, but in nearly all cases a faster and improved service results.

Synthetic Gasoline "Feasible"

More will be heard in future months about synthetic gasoline. There is no doubt that production of gasoline from either oil shale or coal has neared the "economically feasible" state. Interior Department wants to go ahead and promote such a project. It has even lined up a firm which will build the plant if Interior or other government agency will loan \$400 million necessary. But the present joker is that the firm also wants the government to contract for all the gasoline which at

(TURN TO PAGE 130, PLEASE)



I measure
brake lining in

MILES

If you operate one vehicle . . . or a fleet of fifty . . . you naturally figure all costs in terms of *miles*! And that certainly goes for brake lining. How much, in dollars, for how many miles of safe stops . . . that's the question. Inlite answers it with *more miles* . . . from matched sets, compounded specially for exact friction on each brake of each of *your* vehicles. Inlite . . . a General Motors product, tested at the Proving Grounds!

INLAND MANUFACTURING DIVISION • General Motors Corporation • Dayton, Ohio



INLITE

Brake Linings



DETROIT DISPATCH

by LEN WESTRATE Detroit News Editor

GMC Has Small Diesel

Toward the end of this month GMC will introduce a new model diesel powered truck in the lowest weight class yet offered to fleet operators—2½-tons. The engine is lower in horsepower than any truck diesel now in the market and will extend the operating economy of the diesel to an area which has never before had this option. The new model is designed primarily for tractor operation, but will be offered in various wheelbases for straight truck and special body applications to fit particular fleet requirements. This incidentally, is not the particular small diesel engine we have referred to previously as being under development by a major manufacturer.

Ford to Have Three New Engines

It is reported that two new overhead valve V-8 engines and a new overhead valve in-line 6 (see Page 66) will feature the new Ford 1952 truck models to be announced very soon. In addition, other L-head engines continued in the line presumably will be stepped up in horsepower. Continued use of the L-head Ford V-8 engine and the 254 cu. in. L-head 6 will bring to five the number of power plants in the Ford truck line.

Few Other Changes

With the exception of Ford, major truck manufacturers will have very few changes in 1952 models. In fact, most other companies made the changeover to 1952 model designations in October or November by assigning new serial numbers. Included among those who did so are GMC, Dodge, and Studebaker. Chevrolet continued 1951 model production until late in December and then after a short shutdown started output of 1952 models early this month, with public announcement to come later.

Total Output Sets New High

Although official figures are not yet in, best estimates of 1951 truck production put the total at 1,424,000 units or about 92,000 ahead of 1950 and approximately 58,000 more than in the best previous year, 1948. However, the 1951 total included a substantial but undetermined number of military units, so there is a strong possibility that strictly civilian truck production did not hit an all time high. Bus production last year climbed sharply to an estimated 9000 units compared with 4908 in 1950. Although passenger car production in 1951 was cut sharply during the last half of the year, momentum attained in the first six months carried output for the year to

an estimated 5,373,000 units, for the second best year on record.

Prices Still Going Up

In view of constantly increasing costs of labor and materials it looks as though prices of trucks, service parts, and other items fleet operators buy, can go only one way—upward. Late last year Ford, Chevrolet, and Dodge, increased their truck prices about 1 to 2 per cent to recover the added cost of conversion steel used in production. Ford also has announced that it is asking for a 3 per cent increase in prices for industrial engines and replacement parts and accessories under the Capehart amendment. It is quite likely that other companies will take the same course.

Parts Outlook Better

On the basis of first and second quarter allotments for materials, the outlook for replacement parts this year continues good. Toward the end of last year the benefits of the CMP plan were beginning to show and most manufacturers were in pretty good shape. It is estimated that production of repair parts during the first half of this year will be from 10 to 12 per cent ahead of the same period a year ago and that during the last half of 1952, output will be fully as good and possibly be a little better.

Tire Situation Bright

Prospects for truck tires in 1952 are good. Recent relaxation of controls over synthetic rubber will not have too much of an effect on truck tire production, since they are made primarily from natural rubber. Smaller sizes that use some synthetic rubber, of course, will benefit from the eased controls. However, it is anticipated that the tight controls over natural rubber also will be relaxed or eliminated in view of the improved world rubber situation, and if that occurs truck tire production will increase. Actually there is no shortage of truck tires at present nor is any expected. However, if more natural rubber should become available, the supply of tires would be enhanced and quality in the smaller sizes which now use considerable synthetic rubber possibly might be improved also. There does not seem to be much of a possibility, however, of a second line of truck tires since most companies are putting all the stress on premium tires on the basis of lower cost per mile and less loss from down time due to tire failure. It also is not expected that military tire production will interfere to any extent with civilian production in the light of requirements now in sight.

(TURN TO PAGE 108, PLEASE)

BOWER

Roller Bearings



from your
Federal-Mogul
Jobber

You get *both* tapered and straight roller bearings in the Bower line, as supplied by Federal-Mogul Jobbers!

It's a *dependable* service, backed by two of the greatest names in the bearing business. You know you can depend on Bower Quality and Federal-Mogul Service!

Bower roller bearings are made available to the service trade only through Federal-Mogul Service. Ask your Federal-Mogul Jobber!

FEDERAL-MOGUL SERVICE

Division of Federal-Mogul Corporation
DETROIT 13, MICHIGAN





WEAVIN' WILLIE, OUR HANDSOME CITY DRIVER, SAYS THAT GALS WHO WEAR OLD-FASHIONED PANTS WILL BE ANNOYED ALL RIGHT—BUT JUST BY ANTS.

CCJ

The last census had revealed that "Old Man" Jones, a retired garage operator, was the oldest inhabitant in town. A reporter from a local newspaper was sent to interview him.

"And tell me," inquired the reporter, "what would you do if you could have your time all over again?"

There was a long silence while the oldest inhabitant appeared to be deep in thought.

"I think I would part my hair in the middle," he replied.

CCJ

Steno Lou: "Did you hear the news that Maybelle and Horace plan to get married?"

Steno Sue: "Yes, I did. That's going to be a dollar and sense wedding."

Steno Lou: "Why, what do you mean?"

Steno Sue: "He hasn't a dollar and she hasn't any sense."

CCJ

Weavin' Willie, our City Driver, just got back from a vacation spent at one of the Florida beaches. Questioned with regard to the amount of pulchritude displayed by the bathing girls on the beach, Willie said: "Well, they certainly know how to pack their trunks."

CCJ

Superintendent of Maintenance on meeting the new first-grade teacher: "I am very happy to know you, Miss Swanson. I am the father of the twins you are going to have this term."

CCJ

The Freight Claim Agent received a call from the hospital saying that his OS&D Clerk, a new father, was acting oddly, and could he send some one up to see about it.

Freight Claim Agent: "What's the trouble with him?"

Nurse: "Well, he's just become the father of three baby boys."

Freight Claim Agent: "That is quite a shock, what is he doing?"

Nurse: "He's just going around smiling from heir to heir."

The Personnel Manager for the trucking firm was interviewing a long, lanky, overgrown fellow from the Tennessee mountain country. "What kind of job are you looking for?" he asked the applicant.

"Oh, I've allus had a hankerin' to be a opyrader on one of them big go-devil trucks," replied the hillbilly.

"Well, it is mighty nice work, but we don't hire applicants for driving unless they're experienced and over twenty-five years of age," responded the personnel man.

"I'm a fast learner and I'm twenty-six years old, can I git the job?"

"I suppose we could take you as a trainee some time when there is an opening, but how do you know you are twenty-six years old. Do you have a birth certificate?"

"No I ain't got no sustiffycat, but I know I'm twenty-six 'cause onct Pa told me how old I wuz and I've added a year onto it ever plowin'," explained the mountain boy.

"Did you add the year on at the spring plowing or the fall plowing," queried the personnel manager.

The hillbilly was really confused now. After a great deal of thought, he said, "Hod-durn it, I knowed I wuz gettin' old too fast. That explains hit!"

CCJ

Hawgjaw Glut, our shop roustabout who hails from the hills of Tennessee, says that it's always the fresh egg that gets slapped in the pan.

CCJ

First Freight Loader: "A nice gal sure can work a wonderful change in a man."

Second Freight Loader: "Yeah—and relieve him of a lot of it, too!"

The Superintendent of Maintenance had been out with the boys in a friendly little poker session. It was three o'clock in the morning when he let himself in to be met by his irate wife.

"I want an explanation and I want the truth," she demanded.

"Well, make up your mind one way or the other, woman. You can't have both."

CCJ

Fatty Floorboarder, our jovial peddle run driver says it takes two to make a marriage. A single girl and a suspicious mother.

CCJ

The road truck driver was undergoing his annual medical exam required by the state regulatory commission. The doctor was quite disturbed at the sounds he heard through his stethoscope. "Your heart action is a bit questionable. Apparently you have been bothered by angina pectoris since your examination, last year."

"That I have Doc, that I have. But you ain't got her name right."

CCJ

It was his day off and the Brake Specialist decided to go down to the Red Cross blood bank and donate some blood. As he made his way toward the collection center he became weak-kneed and decided to stop in at a convenient bar for a shot or two of bourbon to build up his courage for the blood-letting. He came out of the bar reeling and weaving toward his high purpose, but staggered into a barber shop by mistake. When the white-coated man came toward him with an open razor and said, "Open your collar, please," the brake mechanic did an about face, rushed from the shop and became cold sober before he was a half block away.

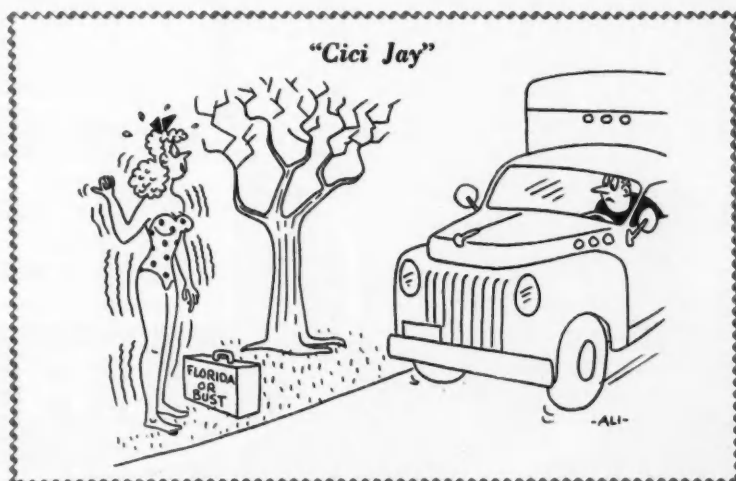
CCJ

The Safety Supervisor and his wife were seated at breakfast before their large picture window which focused directly into a similar window of their neighbor.

"No matter what the temperature or the season, that young girl next door takes a cold shower every morning and every night," observed the wife.

"Yes," replied the Safety Director, "and I've noticed she manages to stand up under it beautifully."

Resume Work



now

LEE 5-RIB

"road-trucking"



By Gavin Laurie

Manager, Automotive Division
The Atlantic Refining Co.

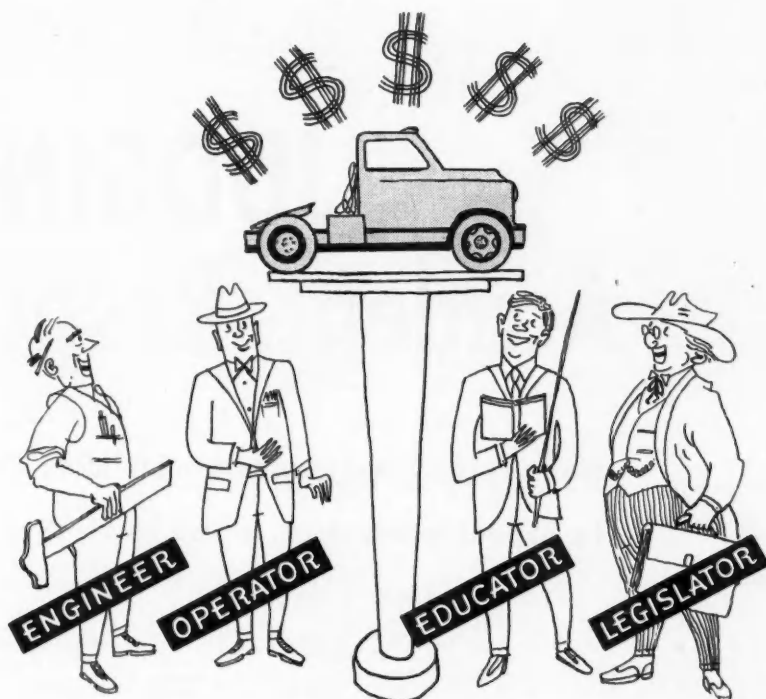
CCJ
FEATURE SECTION

V A NUMBER of factors, individually or collectively could be pertinent to the subject of reducing capital investment in trucks. There are many basic concepts which have similar patterns in all operations regardless of the nature of the commodity being hauled. The common factors can be discussed under the categories of engineering, efficiency of operation, education, and legislative developments.

Engineering

THE important item that might be considered under this category is the *proper selection of equipment*. This can assume various interpretations dependent to a large degree on the operation involved. It is most necessary to have properly powered and properly designed equipment to do the job required, but it is equally important to design so carefully that excess design factors of safety are not included in the computations and thus high depreciation and repair costs result. Today, as never before, constant skill is required by the designer and purchaser of motor vehicle equipment, and a large truck fleet operator can certainly easily justify the employment of the highest professional talent for this job.

Automotive engineers when designing their equipment for sale, appreciating that many customers will overload and overwork their vehicles, design good factors of safety into them and frequently are inclined to rate them conservatively. Those who purchase for fleet operations should keep this in mind and should be guided accordingly when developing the truck units which they expect to use in their operations. It is almost as bad to specify an overpowered, overweight truck as it is to specify one that is under-powered and unable to properly perform its job. A too substantial safety factor in design and purchase will result in less payload, sometimes unsatisfactory engine operation, often a slower running vehicle on the highways. Added to



Four Factors Cut Truck Investment

**Vehicle engineering, operating efficiency,
driver and mechanic education, legislation
—all can reduce your capital investment**

these, we find replacement parts cost more, and there are more expensive overhauls, because the larger the unit the more expensive are the repair costs. If the initial cost, and thus the daily depreciation expense is higher than would be true with proper "on the button" engineering design,

then obviously there is just that much more of a problem for the operating department to deal with.

In planning the purchase and use of motor vehicles in the utility industry, a somewhat different approach to the problem is taken. Here the
(TURN TO PAGE 86, PLEASE)

ARE YOU A SAFETY EXPERT?



JUDGING Accident Responsibility

**Non-professional standard of judging accidents causes drivers
to expect protection, slows analysis of contributing factors**

IF FLEET safety directors ever hope to make any great strides in reducing accident rates, they must reorient their thinking on accident responsibility. An accident in which your driver was a *contributing cause* is just as expensive as one for which he was the *direct cause*.

Too many fleet safety directors are prone to look at an accident from the strictly legal point of view: Which vehicle struck the other? Which driver's actions were directly responsible for the collision or injury?

Another too common point of accident analysis is that which attempts to determine which driver was *most* at fault.

Both types of thinking are outmoded and unsatisfactory for professional driving standards.

Most fleets are teaching drivers the defensive driving technique. They should follow this up with teaching accident responsibility based on, let's call it, baseball rules: It's not only who tags whom for the out, but also that errors will be charged against the player who is caught off base and, thus, gets himself put out.

A Test for Teachers

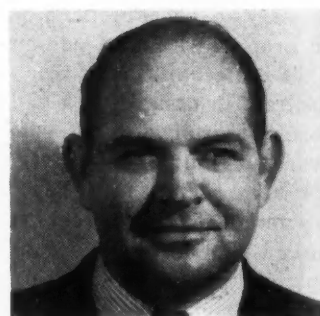
NOW, it should go without saying that in order to teach this new code of accident responsibility, the

teacher also must know the code and its rules.

In teaching army and fleet safety personnel the basic rules for judging accident responsibility, I have spent many hours in research and study of typical common highway accidents. The students in our traffic and safety courses are given about 20 of these actual cases. They are asked to read the driver's accident report very carefully and indicate whether "our" driver was the CAUSE or VICTIM of each of the accidents.

Then, and this is very important, they are asked to explain WHY the respective drivers either caused the accident or were the victims. This provides a key to their knowledge of accident-causing situations, and the logic employed in arriving at such decisions. If their knowledge and logic is faulty in the classroom, it surely will be in the field; therefore, must be corrected immediately.

Of course, the ideal situation is to take such groups out on real accident investigations. Whenever possible, we do this. Further, to provide as much of such field study as possible, often we simulate real accident situations—even to coaching the respective drivers in reporting their respective alibis and pre-accident situations. This has proved to be very effective.



By Donald S. Buck

Traffic Safety Engineer
Department of the Army, Washington, D. C.

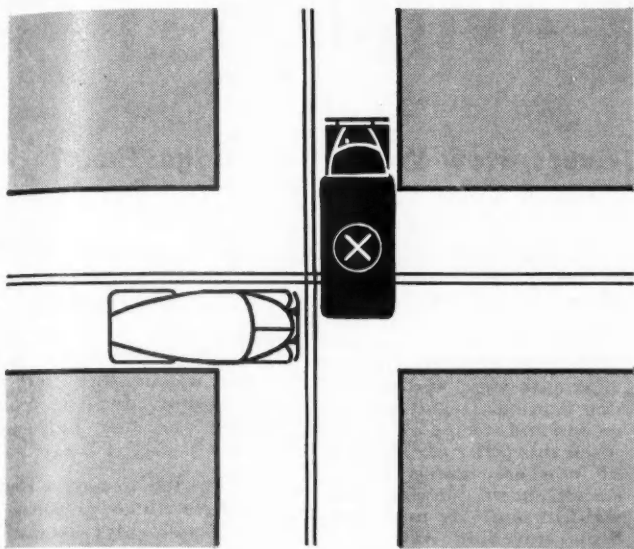
On these pages are a few of the classroom cases we use, so that the reader may test his knowledge and ability to judge accident responsibility based on modern defensive driving techniques.

In passing judgment on these accidents, the reader will assume the following: Each report is based on a true accident; each driver's report is true, complete and accurate in every detail.

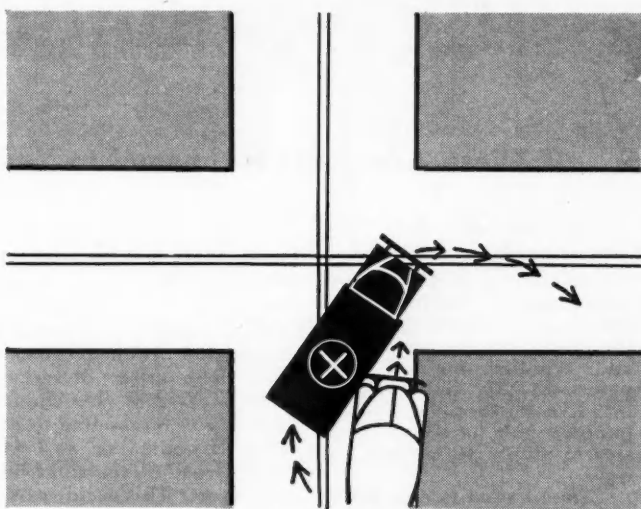
Sketches showing how each accident occurred are supplied. The vehicle marked by the letter X was operated by your (our) driver. A score box is supplied, and the correct

Can You Pass This Basic Test?

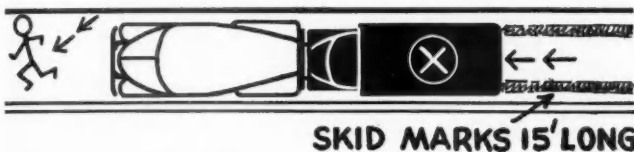
Here are six cases representative of the 20 used by the Author in his classes. There are four more on the next page



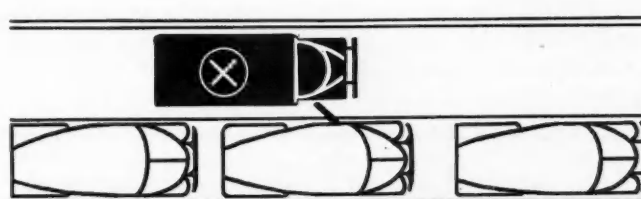
No. 1: Was our driver the CAUSE? ... or the VICTIM? ...



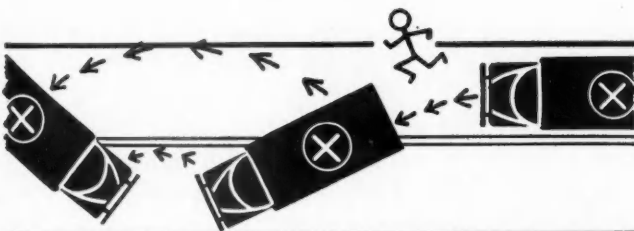
No. 10: Was our driver the CAUSE? ... or the VICTIM? ...



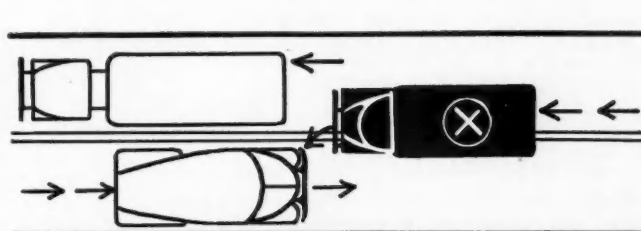
No. 3: Was our driver the CAUSE? ... or the VICTIM? ...



No. 12: Was our driver the CAUSE? ... or the VICTIM? ...



No. 4: Was our driver the CAUSE? ... or the VICTIM? ...



No. 14: Was our driver the CAUSE? ... or the VICTIM? ...

answers will be found elsewhere in this issue.

To make the procedure absolutely clear, the following is an example of how the reader should go about this test.

DRIVER'S STATEMENT: "My vehicle was parked at the curb in a parking stall. When I came back, a policeman informed me that a truck had swerved to miss a child, but it sideswiped my parked vehicle."

INVESTIGATOR'S PROBLEM: Was our driver the CAUSE? ... or VICTIM? ... (Check one.)

INVESTIGATOR'S DECISION:

This driver was the VICTIM of this accident, because there is no evidence of safe driving failure on his part.

That's all there is to this test. Due to space limitations only a few will be given. Let's start with

CASE No. 1

DRIVER'S STATEMENT: "I was driving within the speed limit of 30 mph, when I approached the intersection. There were no signs nor lights. I was almost across the intersection when this other guy, coming from my left, hit my left rear fender. He left skid marks 44 ft. long. I did

(TURN TO NEXT PAGE, PLEASE)

TEST SCORE BOX

It requires more than average knowledge and correct attitude of defensive driving techniques to make the passing grade—Fair—in this test. Even then you're not ready to qualify as a teacher and judge of safe driving.

Take 10 points for every correct answer. Rate yourself as follows: 7 correct answers, FAIR; 8, GOOD; 9, SUPERIOR; 10, EXPERT.

SUMMARY OF DECISIONS

1. Cause....Victim....	9. Cause....Victim....
2. Cause....Victim....	10. Cause....Victim....
3. Cause....Victim....	12. Cause....Victim....
4. Cause....Victim....	13. Cause....Victim....
5. Cause....Victim....	14. Cause....Victim....
Total Correct.... % Rating....	

CORRECT ANSWERS ON PAGE 134

JUDGING Accident Responsibility

Continued from Page 53

If These Accidents Happened to Your Drivers, How Would You Judge Them?

CASE NO. 2

DRIVER'S STATEMENT: "I was driving at 45 mph at night on the highway. A speeding car passed me from the rear, cut in suddenly, and crowded me off the pavement. My right wheels hit a soft shoulder, so I pumped the brakes and slowed down to about 20 mph.

"Then I tried to ease back on, but the right rear tire skidded along the edge of the pavement, causing me to swerve and hit an oncoming vehicle head on. My wheels cut into the shoulder, although it looked level with the pavement."

INVESTIGATOR'S PROBLEM: Was our driver the CAUSE?—or VICTIM?

CASE NO. 5

DRIVER'S STATEMENT: "It was dark. I was driving along the highway, when I met a vehicle with blinding headlights coming toward me. The other driver refused to dim his lights, and it was impossible to see where I was going, so I ran off the road on the right side and upset. This accident was caused by blinding headlights. If the other guy had dimmed, the accident would not have happened. This other fellow didn't even stop, so I don't know who forced me off the road."

INVESTIGATOR'S PROBLEM: Was our driver the CAUSE?—or VICTIM?

CASE NO. 9

DRIVER'S STATEMENT: "I pulled up to the crossing. There was no stop sign. I came almost to a full stop, looked in both directions. There was a perfectly clear view each way, and no one was coming. I shifted into second and started on across, when this other car shot out of nowhere, going like a streak, horn blowing, and slid into me! He must have been travelling very fast, since he skidded 80 feet! I skidded only 10 feet. Luckily there was very little damage, but he caused the accident by speeding. He simply came out of nowhere!"

INVESTIGATOR'S DECISION: Was our driver the CAUSE?—or VICTIM?

CASE NO. 13

DRIVER'S STATEMENT: "Since our state is pretty hard on drunken driving, I went to the party and actually drank only two beers—and not another drop! I had nothing at all to drink during the last half-hour before I started home.

"I started to pass a slow-moving vehicle, when it slowed suddenly; because I barely nicked him as I went around. Immediately the police gave me the drunkometer test, checked my story and cleared me."

INVESTIGATOR'S PROBLEM: Was our driver the CAUSE?—or VICTIM?

not put on my brakes, because I tried to get out of his way when I realized how fast he was going."

INVESTIGATOR'S PROBLEM: Was our driver the CAUSE?.... or VICTIM?....

Case No. 3

DRIVER'S STATEMENT: "I was driving along in heavy traffic when the guy ahead of me stopped suddenly, without any warning or signal at all. We were traveling only 20 mph, and I was at least 25 ft. behind him. I slammed on the brakes and hit the horn, and cut my wheel, but I didn't have a chance, and I slid into his back end.

"The police told me that the other driver was obstructing the highway.

"He admitted that he gave no signal at all. He stopped suddenly when a child darted out ahead of him, and caused the accident by not giving me fair warning."

INVESTIGATOR'S PROBLEM: Was our driver the CAUSE?.... or VICTIM?....

CASE No. 4

DRIVER'S STATEMENT: "It was brake failure pure and simple and I

am sure lucky that no one else was coming toward me.

"I was driving along, at only 30 mph, on wet pavement, when a child ran out in front of me. I applied the brakes hard, but they grabbed and threw me violently to the left. The back end of my vehicle skidded past the front end, although I steered towards the direction of the skid, and I finally wound up on the wrong side of the road in the ditch.

"Those brakes were adjusted at the garage just three days ago. While all four tires skidded, one must still grab because it threw me into a side skid. Obviously something was wrong with them."

INVESTIGATOR'S PROBLEM: Was our driver the CAUSE?.... or VICTIM?....

CASE No. 10

DRIVER'S STATEMENT: "While driving on the street, I started to turn a right corner. I have to start fairly wide to make the right turn into it. I gave an arm signal for right turn and started to turn at about 20 mph, when this other guy caused the accident by trying to pass me on the right side!"

"The police arrested him for improper passing, so there's no question that the other driver caused the accident."

INVESTIGATOR'S PROBLEM: Was our driver the CAUSE?.... or VICTIM?....

CASE No. 12

DRIVER'S STATEMENT: "I'm driving along on a main street of the city, at 20 mph. Not much traffic. I am in the right lane, next to the parking lane. There is parallel parking along the curb. Suddenly this guy in a parked car opened his door just as I came along. I swerved and blew my horn, but the back of my vehicle hit his door and tore it off."

INVESTIGATOR'S PROBLEM: Was our driver the CAUSE?.... or VICTIM?....

CASE No. 14

DRIVER'S STATEMENT: "I'm following this big truck on a two-lane road. I pulled up about 10 ft. behind him (he was crawling along about 20 mph on a 55-mph road). I started to ease out to see if the way

(TURN TO PAGE 120, PLEASE)

Legislative Roundup-1951



The year brought higher fuel taxes, increased registration fees, liberalization of size and weight laws, heavier penalties for overweight and new equipment requirements for many states



By Arthur C. Butler
National Highway Users Conference

SOUTH DAKOTA, UTAH and WYOMING all increased their rates from 4 cents to 5 cents per gallon. ILLINOIS increased its rate from 3 to 4 cents with an additional 1 cent on Jan. 1, 1953. MASSACHUSETTS increased its tax rate from 3 to 4.3 cents per gallon and MICHIGAN increased its tax rate $1\frac{1}{2}$ cents per gallon.

GEORGIA permitted a temporary 1 cent increase to expire (7 cents to 6 cents) and NEW MEXICO reduced its tax rate from 7 cents to 6 cents per gallon. A proposed increase was still pending in MISSOURI.

Diesel, or so-called use fuel taxes have been increased in MICHIGAN (5 to 6 cents), NEVADA (5 to $5\frac{1}{2}$ cents) and NEW YORK (4 to 6 cents). In all other states (except WYOMING) where gasoline tax rates underwent changes, diesel fuel taxes were similarly changed. The IDAHO use fuel tax was repealed in favor of higher registration fees for diesel-propelled vehicles.

Fees and Special Taxes

IDAHO and NEW YORK imposed mileage taxes on heavier vehicles and substantial changes were made in registration and special fees in 15 states.

ALABAMA provided for registration of passenger cars for a flat \$3.00 fee instead of an average fee of \$13.00 and increased the sales tax on motor vehicles from $\frac{1}{2}$ to 1 per cent.

DELAWARE reduced registration fees for diesel-propelled vehicles by 50 per cent.

FLORIDA reduced mileage taxes on for-hire property carriers.

IDAHO registration fees for gasoline-propelled trucks and trailers under 26,001 lb gross weight are now on a flat fee basis; all other trucks, trailers and inter-city buses will pay ton-mile taxes. These taxes will range from 1.1 mills to 12.38 mills per vehicle mile for gross weights between 6,000 lb or less and 36,000 lb; with an additional .38 mills per ton over 36,000 lb. Non-gasoline-propelled vehicles pay double the above mileage fees but are exempt from motor fuel taxes. A 1 per cent gross receipts tax on common carriers was repealed.

ILLINOIS provides for increases in two stages, one to be effective from January 1, 1952, until January 1, 1954, and the other to be effective thereafter. The full increase provides a maximum fee of \$1,588 for a vehicle having a gross weight of 50,000 lb, or over and ten wheels.

MASSACHUSETTS increased registration fees 100 per cent on trucks, trailers, semi-trailers, and 50 per cent on passenger cars.

MICHIGAN raised registration fees on practically all vehicles except private passenger cars and light trucks. New truck fees will have a maximum of \$2.00 per 100 lb of

(TURN TO PAGE 164, PLEASE)

Motor Fuel Tax

EIGHT states increased their motor fuel tax rates in 1951. NEW HAMPSHIRE, NORTH DAKOTA,

FORTY-FOUR state legislatures met in regular session in 1951 with KENTUCKY and LOUISIANA meeting in special sessions, thus leaving VIRGINIA and MISSISSIPPI the only states to hold no sessions. All but GEORGIA, MISSOURI and PENNSYLVANIA have adjourned sine die. GEORGIA recessed until January, 1952. Details of the more important legislation enacted follow:

Winter Maintenance North of the Border

Canadian bus maintenance superintendent describes his "ounces of prevention" to ward

VCHANCES ARE there isn't another inter-city bus fleet on the continent of comparative size that gets a kick in the pants from old Jack Frost the way Provincial Transport does. Look at the area our big orange coaches cover and the temperature variations we face: From Toronto and North Bay, Ontario, in the west, right up to Chicoutimi in the northeast, and all the way out east to St. John, New Brunswick.

In places like Chicoutimi, the thermometer regularly flirts with 50 deg below, and on most of our other runs through Quebec 20 below is a common condition. This means we have to extend ourselves taking precautions to maintain correct anti-freeze proportions and sufficient coach tempera-



ture for passenger comfort. On top of that, there's snow and icy roads to worry about. And for sleet and slush conditions, you have to go a long way before you find a city as rugged as Montreal.

So, immediately after Labor Day each year, we get cracking on our

program preparing for winter operations. The voluminous summer schedules have been sliced, and this gives us a chance to get the coaches into the shop. The plan we've worked out runs something like this.

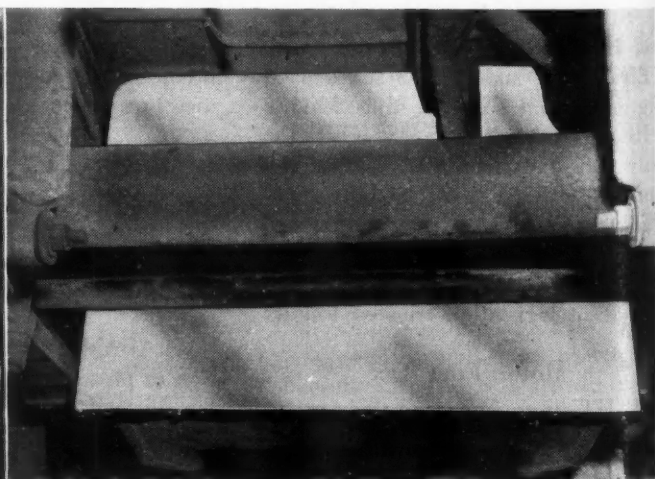
How Winterizing Begins

FIRST, all heater lines, hoses and connections are inspected minutely and doubtful hoses or clamps are changed. Corroded lines are replaced. Because we use ethylene glycol throughout the fleet during the winter months, the "seeping" tendency of that anti-freeze means we have to look good and hard at all connections. (Recently, we've adopted the use of a spring tension clamp that restricts the seepage of the anti-freeze. It ex-

FIG. 1. Pit view of the underside of a bus with an enclosure over midship engine. This cuts winter trouble



FIG. 2. A provincial Transport innovation is this radiator snowshield. It is used only with underfloor engines





By R. A. Harvey
Mechanical Superintendent
Provincial Transport Co., Montreal

off pounds of headaches

pands and contracts with heater lines and water inlets and outlets.)

Following that, heater cores are cleaned by blowing compressed air over the fins. Then they are checked for leaks.

Heater motors are run to test for worn bearings, improper operation or loose connections, and are removed and replaced where necessary.

Chain Maintenance

NEXT we turn our attention to tire chains. In this regard, our practice differs from many bus properties in the States. Every coach is equipped with three chains. Single, standard heavy-duty chains are applied to the outside tires of the rear duals. In

(TURN TO PAGE 58, PLEASE)



TOP. One of Provincial Transport's 650 orange buses familiar to thousands of American tourists and northeast Canadians. **ABOVE.** One of two snowblowers used for regular and auxiliary service on Canadian highways

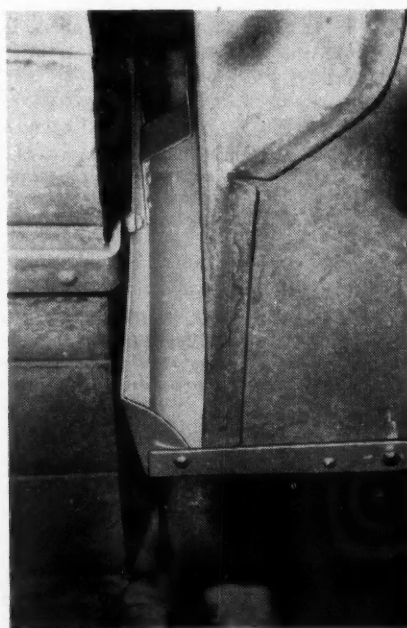
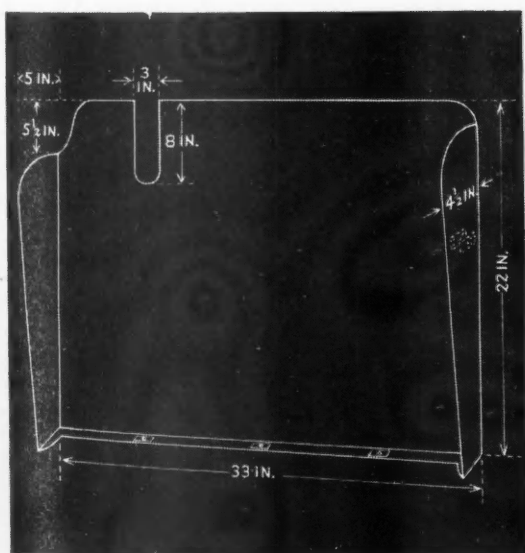


FIG. 3. Drawing at left shows the general outline of PT's radiator snowshield. It is made of aluminum by PT mechanics

FIG. 4. Left: The snowshield has open sides to permit free circulation of air. This view is behind the radiator

Winter Maintenance . . .

Continued from Page 57

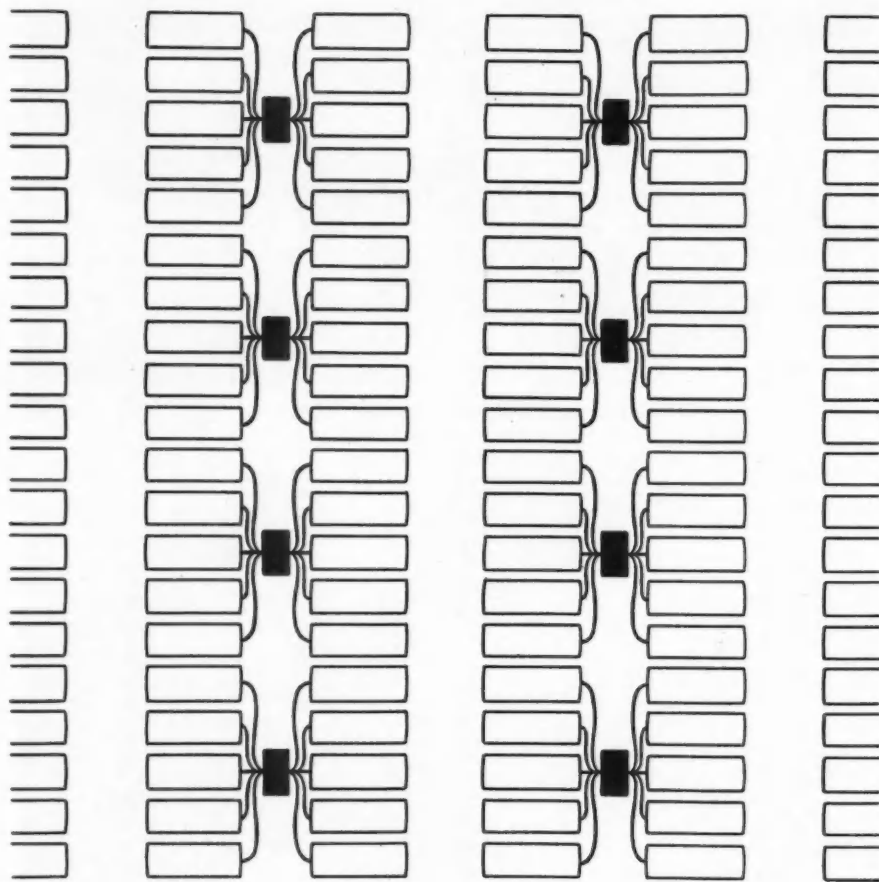


FIG. 5. Diagram showing how PT buses are heated while stored in the open. One unit (block spot with connections) handles 10 buses at cost lower than idling

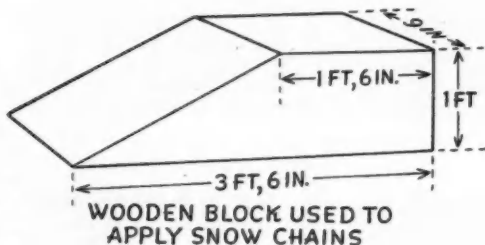


FIG. 6. Working drawing of wood block used by drivers to install chains on the highway



FIG. 7. Lower Left. This shows ease with which chains can be mounted on or off the highway with wood blocks

FIG. 8. Below. PT uses chains on left front wheels. Hard alloy steel nubs are welded on to provide maximum steering traction on ice



SIDE VIEW OF SNOW CHAIN--STEEL TIP WELDED ON TO EACH CROSS LINK

addition, a special chain is mounted on the left front wheel.

These are special only in that we weld pieces of nickel alloy steel onto each cross link, as shown in Fig. 8. This is a direct application of metal, and is done without any jigs or fixtures. The purpose of these hard steel tips is to provide maximum steering traction on glare ice. Our drivers report good results from this innovation.

Our chain maintenance follows standard procedures. They are thoroughly inspected, and worn or broken links are replaced. Then they are sorted into sets and stored, ready for use.

When the chains are issued, each driver gets a special wood block to facilitate their installation on the road. This simple but effective piece of equipment is shown in Figs. 6 and 7.

Each driver also gets a bag of sand for emergency use on some especially slippery spot. All buses are equipped with mechanical sanders but they are used only for stopping.

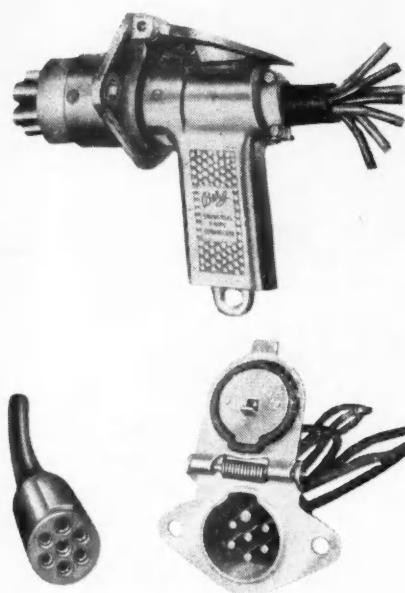
In the shop, it's the tire men who look after the storage and maintenance of chains. Naturally, every time there's a big snowstorm, the garage becomes a madhouse. Because it takes about 20 minutes to equip a coach with chains, this usually means that most of our 360 maintenance men in the shop are pressed into service putting on chains. When chains are installed in the shop, the usual shop jack, and not the wood block, is used.

Drivers have careful instructions to remove a set of chains immediately a cross-link breaks. One year, a driver slipped up on this, and the loose end cut the air line. Without brakes, only the smile of Lady Luck helped him avert a major tragedy. Since then, as an extra precaution, our purchase specification on new coaches calls for air lines near wheels to be routed away from the wheel arch, or to be specially reinforced with steel plate.

Winterizing the Engines

NEXT pre-winter step is to test all thermostats. We simply place them in water which is heated to a point at which they should open. Opening temperature is noted. Then they are allowed to cool, and the closing temperature is noted.

(TURN TO PAGE 102, PLEASE)



Time to Convert to the ATA Connector

ABOVE. Joseph Pollak's seven-way connector. **TOP.** Berg's "Universal." **CENTER.** Cole-Hersee's unit. **UPPER RIGHT.** Joy's version. All are the new 7-wire models approved by ATA

**You can—you should convert all interchange
trailers to one of four separable connectors
now available. It will save time and money**

THE ATA Recommended Equipment Specification E-I-1950 establishes uniform specifications for separable electrical connectors for truck and trailer. Dimensions and design specifications approved by the Committee have been incorporated in the products of at least four manufacturers to date, all of which are now available. Many fleets are already in process of converting tractors and trailers to the new 7-wire coupler. Some have completed the changeover. Reports from the field indicate savings in labor and parts as well as in improved safety more than offset the cost of conversion.

In converting to the new connector, fleetmen will want to equip all tractors with a new ATA cable plug in addition to the old plug. This can be done by either a tap-off or a Y connection on the existing jumper cable. Or it can be done by installing a new cable alongside the old one, thus leaving both old and new available to accommodate trailers that have not been modified.

Contacts in the ATA plug are recessed below the end of the plug to reduce the possibility of external shorts. However, it is suggested that the end of the plug be covered with tape. And if the contacts of the old plug are exposed, these should be covered with

insulating tape when the ATA plug is used.

Complications of a sort may arise with the particular design of the old plug. If the present jumper cables do not contain a ground return conductor, it will be desirable to install new cables with a conductor which can be used for a ground return. Brighter and steadier lights will result. The ground return conductor should be No. 10 B & S cable to handle the total trailer electrical load with minimum resistance. The ground return conductor in jumper cable should be connected at the tractor to a good ground.

The conductor for marker and clearance lamps should be connected to contacts Nos. 2 and 6 to handle all marker clearance and tail lights. If directional signals are used, the left signal is connected to contact No. 3, and the right signal to contact No. 5. These contacts are left blank if directional signals are not used.

The stop light conductor should be connected to contact No. 4 of the cable plug. No. 7 contact should take care of the dome light, advertising sign, back-up lamp, or other auxiliary circuit between tractor and trailer.

Shop adaptations may be necessary in fitting circuits to the new pattern. For example, if all marker lights, clearance and tail lamps on the trailer are on one circuit, this circuit lead wire should be connected to contact No. 2, leaving No. 6 blank. On the other hand, if the tail lamp is on a separate circuit from the marker and clearance lamps, the tail lamp is connected to No. 6, and the marker and clearance lamps are connected to contact No. 2. If directional signals are not used, contacts Nos. 3 and 5 are left blank, and if no auxiliary lamps are used, contact No. 7 is left blank. If contact No. 1 is not directly connected to the metal of the receptacle, for ground, contact No. 1 is connected.

SHOP HINTS

FROM FLEET SHOPS

1. Leak Proof Dump

by S. J. Eisnagle
Eisnagle's Garage
Jackson, Ohio

We were asked to modify two dump truck bodies with leak proof endgates so that the water from sloshy sand would not drip all over the road. Here's how we did the job.

We cleaned the edge where the endgate strikes the body and cemented a strip of sponge rubber 1/17 x 1 in. on the outer and under side of bed, leaving 1/4 in. to extend over the edge of the bed. We then clamped 1/4 x 3/4 in. bar iron along side of this seal

and tack welded it to the bed to form a groove for the seal. This change is easily made and it does the trick.

2. Screwdriver Tip

by Harry J. Miller
Philadelphia, Pa.

It is often difficult to keep a screwdriver in position in the slots of tapets while adjusting overhead valves with the engine running. File a wide notch in the blade as shown in the drawing and the tool will stay in the slot without danger of slipping off screw.

3. Wear Take Up

by George Darwin
Superior Engine Rebuilders
Abilene, Kan.

Here is a quick way of taking up for play in any shaft hole—until the proper repairs can be made. For example, we have used this system on a carburetor pump plunger when parts were hard to obtain.

Insert a small spring over the shaft and place a thin washer between cross arm lever and spring so that spring pressure will hold lever in a steady position at one end of the worn hole. In this way better adjust-

HINT OF \$25 THE MONTH

Ladder Carrier

by Jemain M. Titus, Garage Foreman
Rochester Gas & Electric Corp.

We had the problem of arranging our ladder and lamp changer pole on our street lighting night patrol trucks so that we could preserve space and securely fasten both accessories. We came up with a combination ladder carrier and lamp changer holder which is now uniform equipment on our patrol trucks.

The details are pointed out in the

enclosed drawings, but the main principle is the securing of the ladder atop the truck with a ladder lock and release unit and the insertion of the lamp pole in this holder alongside the truck. Both of these factions are bracketed together, forming one complete unit. This compact and convenient arrangement has proven efficient in our operations.

Method of operation: When handle A is pulled back, the spring B is expanded to allow peg C to be forced to the left and held by angle bar E and, at the same time, disengaging peg D from ladder hold.

The combination ladder carrier and lamp changer holder shown at right hand drawing, right, shows view from atop truck. Ladder lock bracket is shown at top, while lower bracket is the ladder roller made from 1/4-in. pipe with a 1-in. shaft base. Brackets are welded to a 12-ft. length of 2-in. angle iron with an adjustable snap clamp set at forward end.

\$10 FOR ALL HINTS
PUBLISHED EACH MONTH

\$25 FOR THE BEST HINT
PUBLISHED EACH MONTH

ments can be held until repairs are made.

4. Bearing Adjusting Tool

by Francis J. Highberger
Sheeley Baking Co.
Emporia, Kan.

Most fleets have the occasion to pull rear hubs without dismounting the duals—but all wheel bearing wrenches that come with the trucks are designed to be used with the wheels dismounted.

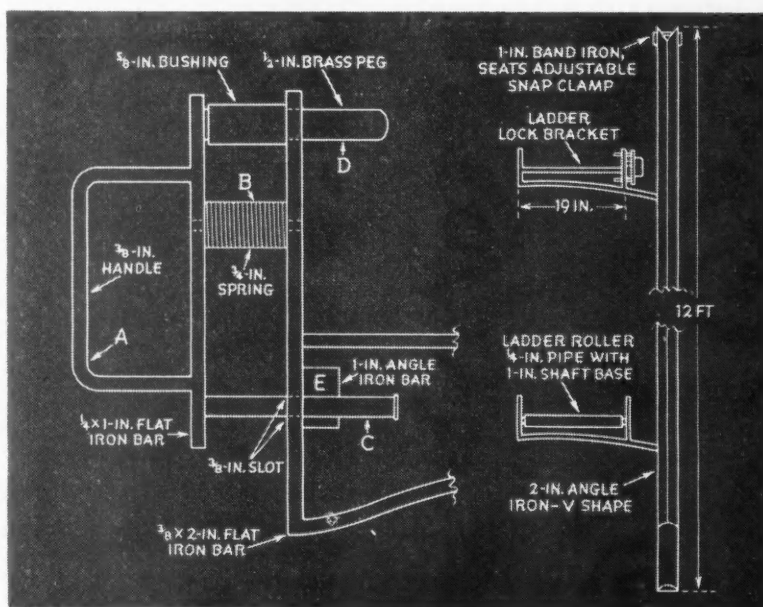
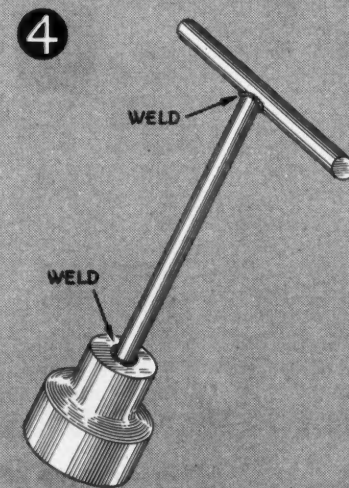
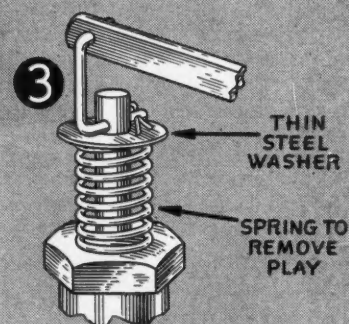
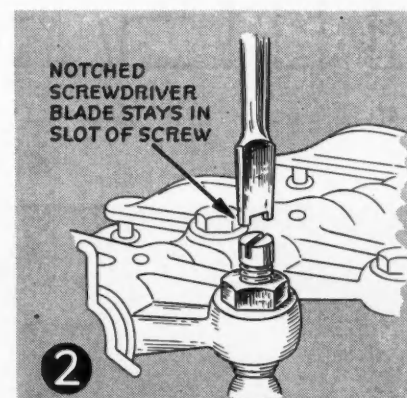
The tool I developed will save time and provide for a more accurate bearing adjustment—without removing

the wheels. I simply welded a T to the regular socket so that the tool can be easily inserted into the hub with the bearing locking nut. A 1-in. pipe 16 in. long is welded to the original socket and fitted with a 10-in. handle as shown.

5. For Frozen Radiators

by Tony Montalbano
Brooklyn, N. Y.

When your radiator freezes, attach a flexible hose or tubing to the exhaust pipe and hold other end over radiator until heat thaws it out.





Simplifies

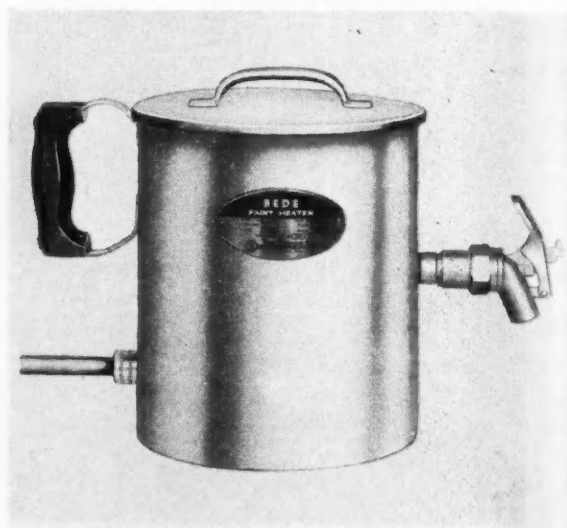
NEW TECHNIQUES in the application of lacquers and synthetic enamels, only recently adapted to use in the fleet field, may well revolutionize the standard practices of spray painting. Hot spray application, developed several years ago for industrial use under assembly line production methods, now can be used in any fleet shop. Recent improvements in methods of heating the paint and the mass of data accumulated with years of experience add up to better jobs at lower costs for the fleetman. For today automotive finishes can be applied with maximum economy and efficiency by the simple expedient of heating the paint at or near the gun during the application.

Hot spray painting, as the name indicates, consists of

The Bede heater provides controlled heat through an electric element for heating gun cup, the paint can or the material itself



Arco's system called Control-Temp uses a steam-heated element in the line to provide for a uniform material flow



Heated to 160 deg at or near the paint gun, spray goes on thicker without sagging, provides smoother surface with less wastage, offers better control with either lacquer or synthetics

By M K. Simkins
Technical Editor

Spray Painting

heating the paint to 160-170 deg as a means of reducing the viscosity to the point where it sprays better, spreads better, lays better and sticks better. The importance of temperature in the application characteristics of an organic finish has been known, but until recently a uniform control of temperature was practically impossible. The painter himself attempted to compensate for daily and seasonal temperature fluctuations as he did for variations in atmospheric

conditions. However, balance in solvent content, spraying pressures and gun stroke did not always produce the best finish, as the variations in the jobs will attest. It remained for controlled heating units used in conjunction with thermostats, timers, etc., to effectively control temperature of the paint spray to the point where better jobs are the rule rather than the exception.

Painters will realize that the only reason for adding thinners and re-

Claimed Advantages

1. Less solvents used and less wasted
2. Coverage doubled — 50 per cent fewer coats needed
3. Uniform consistency regardless of shop or climatic conditions
4. Smoother flow with more natural gloss and greater color depth
5. Less tendency to sag with heavier coats
6. Less spray fumes. Respirator usually unnecessary
7. Less tendency to blush
8. Orange peel and over spray eliminated
9. Lower viscosity which reduces potential shrinkage
10. Spraying time cut in half

ducers to lacquers and enamels is to lower the viscosity of the material. In hot spray, heat is substituted for thinners. Results are phenomenal. For instance, a better control over consistency is maintained. Blushing in cold or damp weather is eliminated due to the fact that the spray hits the metal at a much higher temperature than with cold spray applications. It should be mentioned here that in cold spray, the lacquer hits the surface 20 to 25 deg below room temperature due to the atomization of the spray after it leaves the gun nozzle. When the paint is heated to 160-170 deg, the same degree of chilling takes place, but the spray reaches the surface at about room temperature.

With heating of the paint its viscosity is lowered to approximately
(TURN TO PAGE 146, PLEASE)

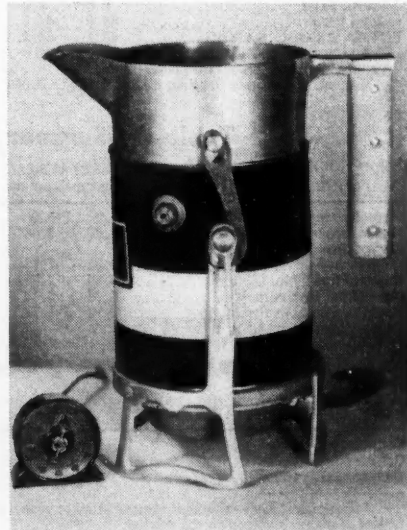
A pressure head on Thermalcup's heater enables painter to spray direct from unit, or the material may be heated directly



Pol-Flo uses a three-piece unit with inside cannister, outside shell, base plate to heat the material indirectly through element



The Spee-Flo unit uses the paint can as heating vessel, mixing and heating the material electrically as it is being applied



LP GAS PROVES OUT

As a Motor Fuel

From standpoints of reduced fuel costs, higher power output, reduced engine wear rate, longer oil life, LP gas engines offer definite advantages over gasoline and diesel

LP-GAS differs widely in both physical and chemical properties from other motor fuels. These differences result in both advantages and disadvantages. Major advantages include: perfect vaporization, very high octane number, uniformity, clean burning, no tetraethyl lead, freedom from impurities, sulfur, gum, etc. Disadvantages include: low spe-

By F. E. Selim

Sales Department
Phillips Petroleum Co.

cific gravity, low heat content per gallon; requires pressure storage.

Probably the most important of the advantages is the perfect vaporiza-

tion. By the very nature of the carburetion systems used with LP-Gas the fuel must be completely vaporized. This results in improved fuel-air mixing and nearly eliminates the problem of fuel distribution between the various cylinders of a multi-cylinder engine. Over a long period of years, during which sporadic efforts have been made to evaluate LP-Gas as a motor fuel we have been surprised consistently by the mileage obtained. In nearly every case these have been better than would have been predicted from conventional considerations of compression ratios, octane numbers and BTU values. The only way these results can be explained is on the basis of improved combustion efficiency due to better distribution, better mixing of the fuel and the air and more accurate control of fuel-air proportioning.

The basic fact that the induction system of an engine burning LP-Gas deals with a completely dry gaseous fuel undoubtedly explains why such engines invariably get much better mileage than would be expected on the basis of BTU content of the fuel and compression ratio of the engine.

Fuel Consumption

The fuel consumption of any engine depends on three basic factors: 1. BTU content of the fuel used; 2. The efficiency of the combustion process; 3. Compression ratio.

Table 1—Power Output of Production Engines

	Bore	Stroke	Number Cylinders	Compression Ratio	Maximum Torque	Maximum Power
A { Gasoline.....	4 1/2	5	6	8.0	375	157
Propane.....	4 1/2	5	6	9.0	420	185
B { Gasoline.....	5	6	6	8.0	540	193
Propane.....	5	6	6	9.0	630	225
C { Gasoline.....	5 1/4	6	6	8.0	640	215
Propane.....	5 1/4	6	6	9.0	720	250

Table 2—Summary of Engine Condition Ratings

OIL DESCRIPTION Fuel	Straight Mineral Propane-Gasoline		Premium Propane-Gasoline		Heavy Duty Propane-Gasoline		Super Heavy Duty Propane-Gasoline	
VARNISH RATINGS								
Piston Skirt.....	8.0	7.0	9.8	9.0	9.6	9.8	9.8	9.3
Total Varnish.....	44.0	44.6	49.0	46.9	49.0	48.7	49.0	47.7
TOTAL SLUDGE RATING.....	43.7	43.9	48.2	42.4	47.9	46.6	47.6	46.1
Total Varnish and Sludge Rating.....	87.7	88.5	97.2	89.3	96.9	95.3	96.6	93.8
Copper Lead Bearing Corrosion, Avg. wt. Loss/whole Bearing, Gr..	0.034	0.680	0.777	0.104	0.165	0.111	0.045	0.034

Table 3—Summary of Used Oil Analysis

OIL DESCRIPTION	Straight Mineral Propane-Gasoline		Premium Propane-Gasoline		Heavy Duty Propane-Gasoline		Super Heavy Duty Propane-Gasoline	
Viscosity Increase @ 100° F. %.....	42.8	115.0	24.4	20.8	13.1	12.6	8.2	3.8
Neutralization Number Increase.....	0.87	9.86	1.97	1.71	1.06	1.62	2.05	2.14
Carbon Residue Increase (Ramsbottom).....	0.34	2.14	0.58	1.54	0.38	1.60	0.50	1.95
Naphtha Insoluble, %.....	0.14	1.82	0.03	0.92	0.04	1.00	0.04	1.27
Chloroform Insoluble, %.....	0.10	0.10	Nil	0.04	Nil	0.71	Nil	1.20
Naphtha Insoluble Resins, %.....	0.13	1.72	0.03	0.88	0.04	0.29	0.04	0.07

Table 4—Summary of Engine Cleanliness Ratings

OIL	Fuel	Oil Ring Plugging	Piston Varnish	Oil Screen	Cover and Pan Sludge	Total
Commercial Regular.....	Propane	9.6	5.3	9.6	7.6	82.2
Commercial Premium.....	Propane	9.5	7.5	9.5	8.7	89.0
Commercial Premium.....	Gasoline*	8.2	4.5	8.0	2.1	41.6

* Special test fuel—although somewhat more prone to form engine deposits than some commercial gasolines this fuel is typical of many gasolines on the market.

*—Excerpted from papers presented at the Detroit Section of the Society of Automotive Engineers, Dec. 10.

Although the BTU content per pound is highest for propane, fuels are bought by the gallon and must be compared on that basis if the comparison is to be realistic. The conventional method of showing specific fuel consumption can be very misleading when comparing LP-Gas with liquid fuels.

On a volume basis the BTU content of propane is approximately 25 per cent below that of gasoline and almost 35 per cent below diesel fuel. This would indicate that all things being equal the fuel consumption would be inversely proportional to the BTU content of the fuels.

However, no fuel can burn unless it is vaporized and completely mixed with air in the correct proportion. In gasoline engines complete vaporization of the fuel is seldom obtained and as a result good distribution is difficult to obtain. Generally, in gasoline engines fuel distribution is reasonably good at the medium and high speeds and poor at idle and low speeds. Thus, the LP-Gas engine always has an advantage from the vaporization of fuel standpoint and will have much better fuel distribution at idle and low speeds.

In the diesel engine fuel distribution depends entirely upon the accuracy of the injection system and in general is pretty good. However, complete vaporization of the fuel and good fuel air mixing are very difficult to attain.

In either the gasoline or diesel engine it is obvious, therefore, that part of the fuel will be either partially or completely unburned with a resultant loss in combustion efficiency. This is indicated by the presence of carbon (smoke) and carbon monoxide in the exhaust and the presence of unburned fuel in the crankcase. By comparison the exhaust from LP-Gas engines is clean, very low in carbon monoxide and crankcase dilution does not occur.

The allowable compression ratio for any spark ignition engine is set by the anti-knock rating of the fuel and/or the ability of the engine parts to stand the higher pressures involved in operation at high compression ratios. An increase in compression ratio from 6.5 to 1 to 10 to 1 increases the thermal efficiency by about 15 per cent. A 10 to 1 compression ratio for some types of engines burning propane is conservative from the

CTA Tallies Up Savings in Fuel, Oil, Service

By S. D. Forsythe,
Chicago Transit Authority

Chicago Transit Authority has in operation a total of 550 coaches using LPG. These are factory-equipped buses, not conversions. In our original budgeting for the new operation we assumed the new equipment might cost in the range of diesel-equipped coaches. Surprisingly enough, the successful bidder quoted a price of \$3000 less per unit, compared with diesel coaches.

LPG buses used by CTA have gained excellent public acceptance owing to quieter operation and odorless exhaust. Operators prefer the equipment because of improved acceleration. All in all the performance of this equipment has been so good that LPG buses now are used more intensively than the other equipment.

Although the equipment has not been in use long enough to provide authoritative operating figures, with the 10 to 1 compression ratio engines used in LPG buses, tank mileage runs about the same as for gasoline equipment. Per-mile fuel cost, however, is considerably lower. Currently, fuel cost per mile figures are about as follows:

	Mpg	Cents/gal	Cents/mile
Gasoline	3	15	5
Diesel	4	14	3½
LPG	3	9	3

Fuel prices noted above are for the Chicago area with fuel tax the same for all three fuels. Incidentally, no insurance premium penalty is paid for the use of LPG, the risk being even better than for gasoline operations.

On the basis of experience at CTA and in other fleets—Fort Wayne which is 100 per cent LPG, San Antonio, and Wichita—LPG equipment will run from 150,000 to 200,000 miles between

overhauls. Lube oil make-up is negligible by comparison with gasoline and diesel engines. Moreover, the LPG fleets find that maintenance of such items as distributor points, spark plugs, and carburetors is considerably lower and required less frequently.

Despite the positive factors in favor of LPG, some service difficulties were experienced at the start of the new operation. Although these troubles were all solved eventually, they may well serve to alert new users. One of the problems is in the need for holding sulfur content to the minimum to prevent corrosion in the system. CTA discovered that even if sulfur is held down in the fuel, sulfur may deposit out of the deodorizing additive. Consequently, it is important to make sure that the deodorizing material used by the refiner is guaranteed to be stable under operating conditions, particularly at elevated temperature. Whatever the source of sulfur, it raises Cain with the regulator.

Another difficulty was found with hard starting in cold weather. This was traced to the design of the choke mechanism. It required so much effort to move the valve that it exceeded the capacity of the battery in extreme cold weather. Consequently, there were "no starts" and in some instances the starters were burned out. The shop cure for this was to introduce the procedure of moving the choke valve—breaking the valve by hand—before pressing the starter button.

It is quite obvious that the difficulties mentioned above, together with others, were to be expected with new equipment and new help. Once out of the way they no longer constitute a service problem.

knock limitation standpoint while 6.5 to 1 is about average for such engines burning gasoline. Compression ratio changes in this order will improve thermal efficiency by about 15 per cent.

Previous papers presented before the SAE have shown that compression ratio changes in this order reduce fuel consumption at light load far more than the improvement in thermal efficiency would indicate. Therefore, the comparative fuel consumption of

a high compression engine burning propane may be much better than would theoretically be possible from the change in compression ratio alone.

Actual service results from city buses indicate that where compression ratio changes in this order are made in the conversion from gasoline to propane it is possible to equal gasoline mileage. Where conversions from gasoline to propane are made

(TURN TO PAGE 136, PLEASE)

Overhead Valve V-8 Powers '52 Lincoln

New 317 cu in. engine develops 160 hp at 3900 rpm at a 7.5 to 1 compression ratio

VOUT OF a long range program going back about four years has emerged the 90-deg V-type overhead valve engine which will power the 1952 Lincoln cars. Attention is drawn to this engine because in the past the basic design of the Lincoln engine, with suitable modifications, has been used in certain Ford heavy-duty trucks.

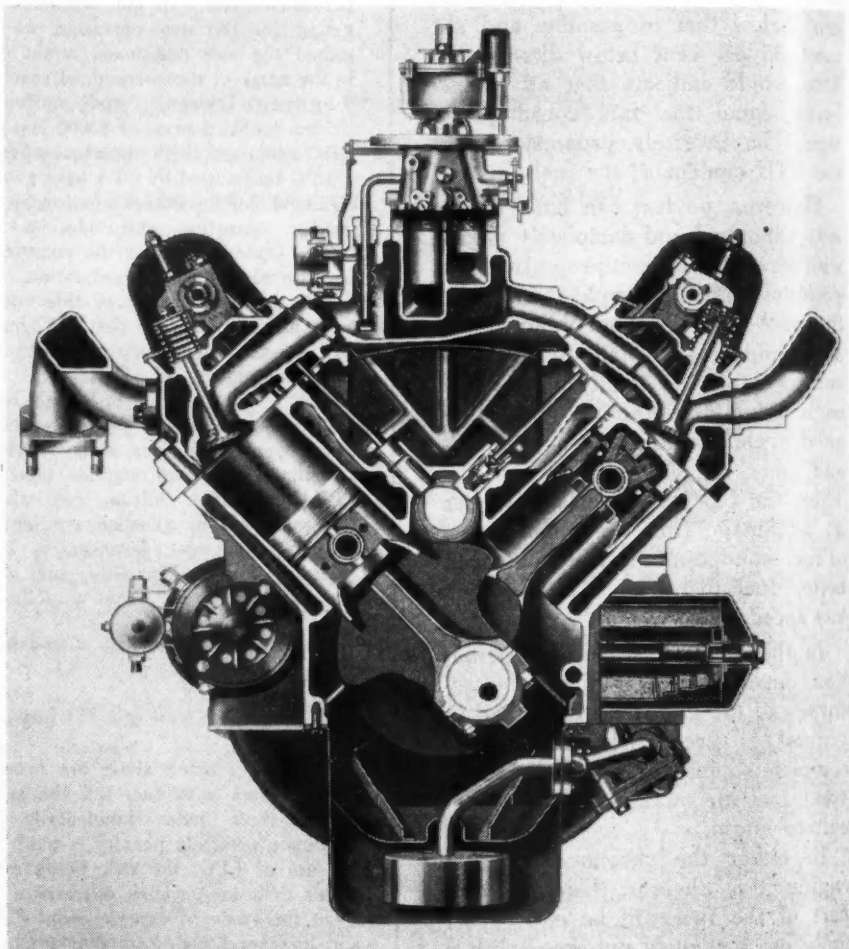
The engine has a maximum bhp rating of 160 at 3900 rpm, a displacement of 317.1 cu in. and features a compression ratio of 7.5 to 1. This engine, model 585M, develops 284 lb ft torque at 1800 rpm.

Although the new engine is considerably lighter than its predecessor, for reasons of flexibility of applications as well as the demand for ruggedness and rigidity, lightness was not a governing factor in design. Cylinder block structure is massive and heavily ribbed to provide the rigidity essential in a high compression, high output engine, considering also the possibility that increased output and higher compression ratios may be demanded of the same basic engine in the future.

The crankcase structure is deeper than customary, extending well below the main bearing center line. While this was done deliberately to produce a stiff, shallow oil pan, the main objective was to effect a wide and continuous, flat gasket surface as an aid to positive sealing. The oil sump is in front rather than in the rear. This is done to accommodate for special engine installation conditions incident to the new chassis arrangement on 1952 Lincolns.

In somewhat similar fashion the top side of cylinder heads has been modified to provide a more adequate method of oil sealing at the gasket joint. The sides of the casting have been extended to produce a panrail

(TURN TO PAGE 116, PLEASE)



Cross section view of new 317.1 cu in. engine, showing valving, connecting rod arrangement, accessory location

Ford's Overhead Valve Six

The new Ford 6-cyl overhead valve engine was described by E. S. MacPherson, chief engineer of Ford Motor Co., recently at a meeting of the Society of Automotive Engineers in Chicago. Among the special features disclosed in his paper, Mr. MacPherson mentioned new valve rotators, integral valve guides, a full-flow oil filter, a four-main bearing crankshaft, with provision made for future use of seven main bearings, a cast alloy crankshaft. The new engine features a high-compression ratio combustion chamber designed to operate efficiently on regular grade gasoline. Increased economy and better overall performance are claimed for the engine.

GMC Puts the Bee on DELIVERY COSTS

GMC survey in dairy field uncovers some startling shortcomings in delivery practices; provides figures which will sharpen management decisions and help reduce costs in all retail deliveries

By W. L. VandeWater

Merchandising Manager, GMC Truck & Coach Div., Pontiac, Mich.

THE subject of delivery costs raises two questions: (1) How important are delivery costs in relation to the remainder of your business? and (2) Is it possible to make significant savings in delivery costs? Let's look at the sales dollar in terms of the control you have over disbursement—the opportunities you have for savings, and what you have done to cash in on these opportunities.

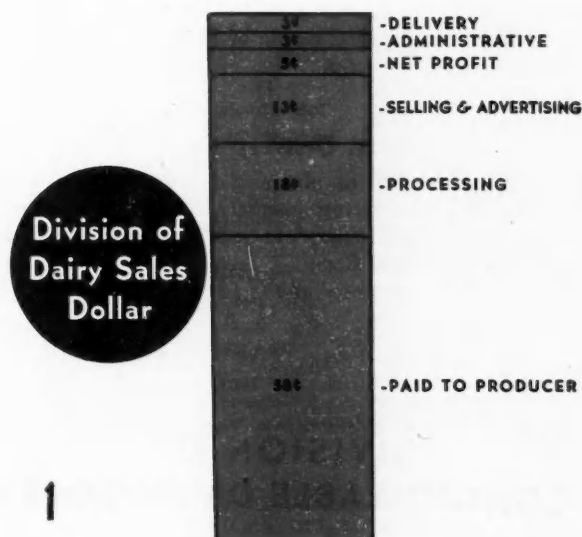
Transportation is one of the last big areas in which management can make substantial economies. The time and place urgency of the retail delivery business makes old transportation text book terms and concepts as obsolete and inadequate as "passenger miles" would be for a measure of ambulance service. For today the transportation assignment of America is a "special delivery service" on a global scale.

Today in all industry we have no true measure of the "value added by transportation." This is a grave misfortune in the milk industry for two important reasons. It enables the demagogues to make out quite a case on the middleman's spread as though it were all profit, and second, it conceals or minimizes the opportunity for transportation savings, because nowhere can we find a comprehensive picture of the whole problem.

If we develop a single theme here, it is this—without facts, without detailed delivery cost figures you are like a pilot without instruments. Whether the problem be an evaluation of retail routes, a decision on vehicle replacement, or what to do about an unprofitable wholesale route, your judgment can be no better than the facts upon which you base it. It is hoped that this "progress report" will provide the nucleus for further development of a workable solution to the problem.

Division of Dairy Sales Dollar

CHART No. 1 shows what becomes of the sales dollar in a typical dairy fleet. The price you pay to producers (58 per cent for this dairy) is directly or indirectly set by the



various market administrators, and offers no opportunity for economy. If, like most dairies, you already have modern processing equipment and methods, there is little possibility of a material reduction in your plant expenses, particularly in the face of upward pressures on wages, and the cost of supplies and equipment. So here is another 18 cents out of your dollar that most of you can't do much about.

The biggest opportunity for savings, then, the costs over which you have the greatest control, are those shown at the top of this chart—Sales, Administration, and Delivery. Here's how the controllable costs split up.

RETAIL COST STUDY SUGGESTS MORE REALISTIC APPROACH IN FIGURING

Controllable Dairy Costs

DELIVERY expense, shown at the top of Chart No. 2, has grown from 3 per cent of your sales dollar to 16 per cent of your controllable costs. This 16 per cent offers a virtually untapped opportunity for cost savings. Are you satisfied that this element of your costs is properly controlled? Have you made the operation analysis and time studies that characterize the planning of your plant operation? Are you satisfied that each of your vehicles is earning its keep; that each of your routes has delivery costs which are in line? Many operations have not.

Let's look at one item—gasoline. In one multi-branch operation we compared gasoline costs per mile at the highest branch cost with the average costs. We found a difference of \$.023 per mile. The trucks in this comparison were all of the same make and model, of about the same age, and rolled up comparable annual mileage.

The difference in gasoline costs then must be largely due to differences in the condition of the vehicles—resulting from maintenance practices. Or perhaps these cost differences are due in part to driver training. Suppose that through efficient maintenance and driver training, gasoline costs at the high cost branch had been kept at the level of the average branch. For the entire fleet of 19 vehicles, this would have resulted in an annual saving of \$1400—equal to the net profit on three retail routes.

Retail Delivery Costs

HOW can management obtain a measure of the overall efficiency of its delivery operation? Chart 3 shows retail delivery costs per 100 points* at each of the 10 branches of a multistop operation. Common accounting practices at all branches insure uniformity of the figures. Note the range—

from 61 cents per 100 points to \$1.53 per 100 points, or a swing of nearly 3 to 1.

Now it is obvious that this does not mean that the delivery operation at branch No. 1 is almost three times as efficient as at branch No. 10. But is branch No. 1 any more efficient? How can the costs of the high branches be lowered? What are the reasons for these wide differences, and what can be done about them? These are the questions which management wants answered.

Retail delivery costs rise sharply as stops per mile decrease. Major correctives for the wide cost differences lies in the realm of sales strategy. Possibly branch No. 10 is trying to serve too large an area, or possibly some of the unprofitable routes in branch No. 9 can be eliminated.

* A "point" in dairy parlance is the sales value equivalent of one quart of milk.

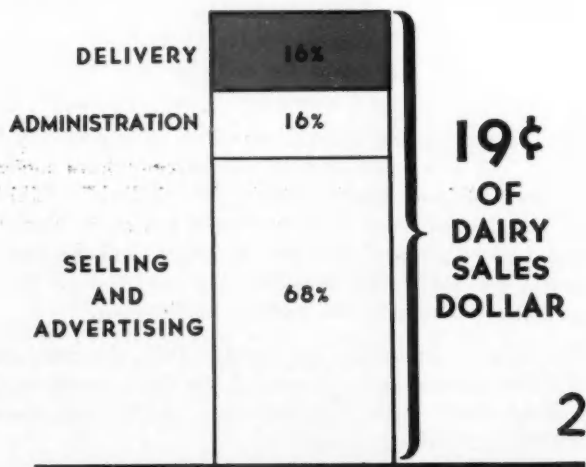
Delivery Costs Per 100 Points

IN assigning delivery costs to individual retail routes, we apportioned total retail vehicle costs among routes on the following basis in order that a route's cost showing would not be affected by the cost characteristics of any given vehicle:

1. Fixed costs were divided equally among all routes.
2. Each route was charged in proportion to its mileage on the basis of an average cost per mile figure for the entire retail fleet.

Applying this method to one dairy we found a variation in retail route costs per 100 points of more than 5 to 1. Chart No. 4 shows that costs rise from less than 40 cents per 100 points for the lowest cost route, to nearly \$2 per 100 points for the highest cost route. Let's consider this chart in terms of per cent of sales. The four top routes—roughly 10 per

DIVISION OF CONTROLLABLE DAIRY COSTS



RETAIL DELIVERY COSTS PER 100 POINTS (10 Chain Branches)



PROFITABLE DELIVERY ROUTE SIZES, DISTANCES; REPLACEMENT TIMING

cent of all routes are being serviced at a cost of more than 5 per cent of sales. The next three routes cost from 4 per cent to 5 per cent of sales.

For this particular dairy total route costs as a per cent of sales were comparatively low. Yet six of its 39 routes show delivery costs of 4 per cent or more. This dairy probably spends about 16 cents a point to buy and process its milk, and to pay for administrative overhead and advertising. At retail selling price of 20 cents per point this leaves about 4 cents per point for route service—out of which must come drivers' compensation, delivery costs, and net profit.

The drivers' share of this 4 cents per point is kept in line by the commission structure. So the principal cause for the wide variation in profit margin per route is delivery expense—expense which has not been subject to this close calculation.

Delivery Costs and Net Profits

CHART No. 5 shows net profit and delivery costs per 100 points for each of this dairy's retail routes. Net profit per 100 points is shown above the horizontal line, and delivery costs per 100 points below this line. Note how heavy delivery costs pull down profits, and how profits rise as delivery costs decline. Note particularly that five routes are operating at a loss. Once each route is costed in this way you begin to get an idea of where you are making money, where your net begins to thin out and where you are operating at a loss.

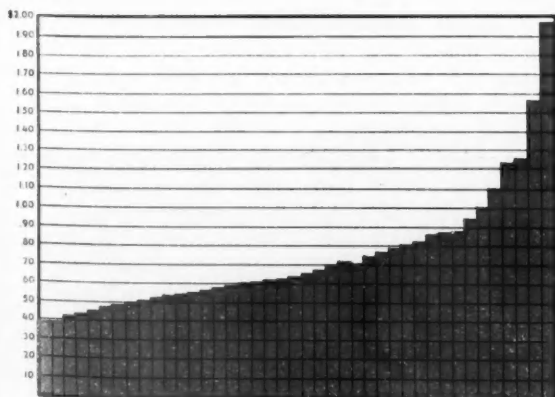
Another example of the need for going behind the conventional reports of point volume is to be found in the sales trend for a given route. We have found instances of routes which have shown good volume gains, but in which steeply mounting delivery costs more than consumed the profit on the added volume. In other words, the cost of running extra miles more than ate up the profit from extra points.

DELIVERY COSTS PER 100 POINTS

4

COST PER
100 POINTS

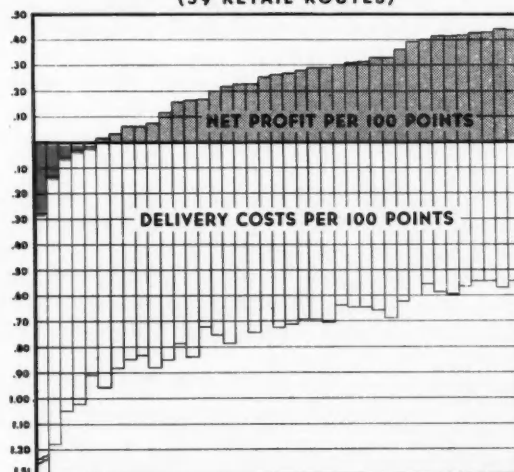
41 RETAIL ROUTES



41 DIFFERENT RETAIL ROUTES

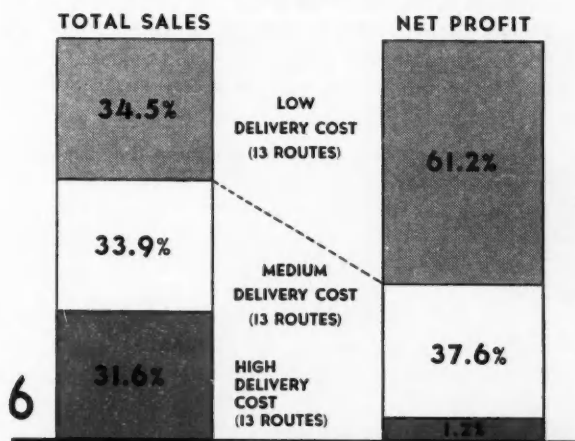
DELIVERY COSTS & NET PROFIT PER 100 POINTS

(39 RETAIL ROUTES)



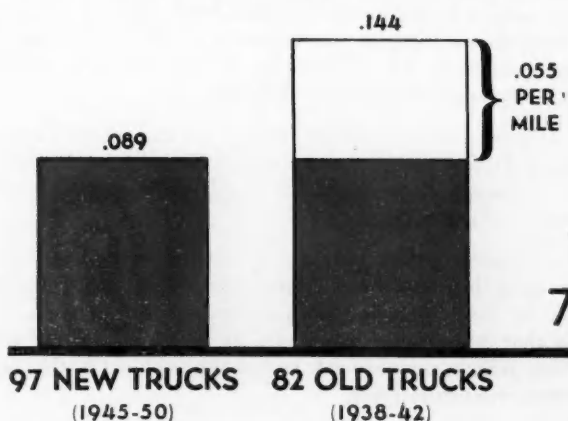
5

TOTAL SALES & NET PROFIT ON HIGH & LOW COST ROUTES



6

OPERATING COSTS PER MILE (97 NEW TRUCKS VS. 82 OLD TRUCKS)



7

OTHER DELIVERIES CAN APPLY SIMILAR YARDSTICKS IN FIGURING COSTS

Total Sales and Net Profit

IN Chart No. 6 this dairy's 39 retail routes are put into three groups of 13 routes each, according to delivery cost per 100 points. The left hand bar shows the per cent of total retail sales for each group of 13 routes. Each group accounted for about 1/3 of total sales. But when it comes to net profit, the story is different. The 13 routes with high delivery costs, shown at bottom of chart, although responsible for nearly 1/3 of total retail volume, brought in only 1.2 per cent of retail route net profit. The low cost routes, on the other hand, accounted for over 60 per cent of total retail profit. In other words, on only slightly higher total volume these 13 low cost routes turned in more than 50 times the profit realized from a similar number of high cost routes.

Operating Costs Per Mile

HERE is a picture of the comparative operating costs (gas, oil and maintenance) of 97 new trucks and 82 old trucks of the same make and model. The new trucks in the left hand bar of chart No. 7 are 1945 to 1950 models and their average operating cost per mile is 8.9 cents. The 82 old trucks (1938-1942 models) have an average operating cost of 14.4 cents per mile or 5½ cents more for each mile they were driven. Annually this difference would amount to about \$25,000. In general, newer vehicles mean lower operating costs.

In one case we studied, however, we found that accounting practices obscured the potential savings to be realized from replacing old vehicles. This operation had complete cost records on each vehicle. Operating cost for 24 old trucks (1938-1942) was \$780 per year per vehicle. This compared with an annual operating cost of \$384 per truck for 12 trucks 1948 or later. Now this dairy depreciated a truck in only 4 years. Here then is the annual cost of running an old truck vs. a new truck when both operating costs and depreciation are considered.

Old Trucks vs New (Cost per Mile)

As noted in Chart No. 8 total costs for the old truck, fully depreciated as shown in the left hand bar, are \$780. Although operating costs for the new truck are only \$384, adding depreciation of \$437 brings total costs to \$821. In other words, each replacement vehicle would increase annual delivery costs by \$41. Obviously in this situation, needed vehicle replacement would be delayed.

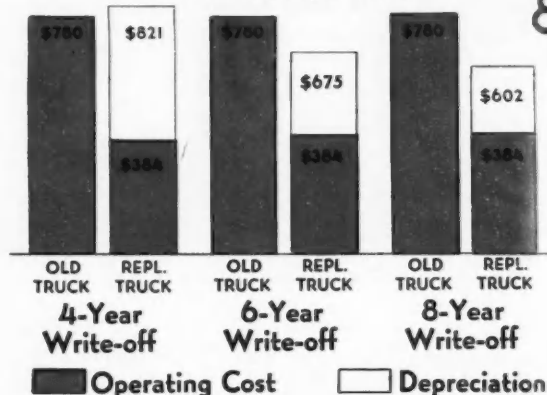
With a six-year write-off the figures are in favor of the new truck by \$105. The last two bars show an eight-year write-off. With this write-off the replacement vehicle saves \$178 a year or nearly 25 per cent.

Depreciation policy is a many sided question and it is often good business to take the most rapid write-off permitted by law. Such figures, however, should not make you think that it is cheap to operate an old truck. When considering vehicle replacement, review the problem in the light of your actual experience.

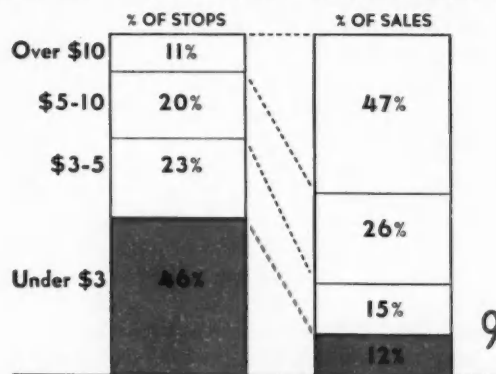
DOES YOUR DEPRECIATION POLICY DELAY NEEDED VEHICLE REPLACEMENT?

COST PER MILE Old Truck VS. Replacement Truck

Annual Mileage 5,200



WHOLESALE STOPS BY ORDER SIZE



Wholesale Stops by Order Size

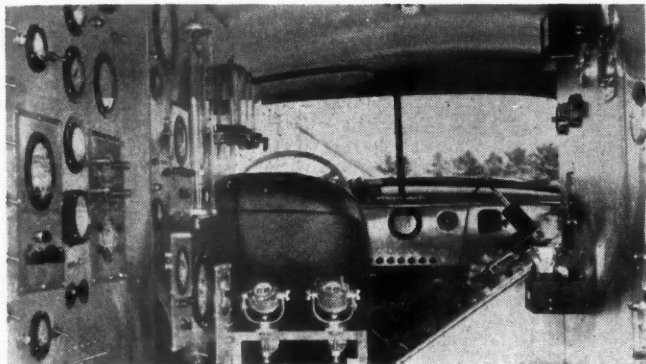
NOW let's look at the other side of your delivery operations—the wholesale routes—to check up on the cost of making deliveries. A detailed study was made of the route with the highest percentage of small stops. (Nearly one stop in five was for less than one dollar.) Looking at the bar on left (chart No. 9) it will be seen that almost one half of the stops were for less than \$3. These stops, however, accounted for only 12 per cent of the total route volume. Almost the reverse of this is true with the large deliveries—those for more than \$10. Although only 11 per cent of all stops were of this size, these 11 per cent were responsible for 47 per cent of total route business.

The question of who gets the small orders usually pops up. To get an answer to this question we classified the 58 accounts on this route by total monthly volume. Then we sorted out the small orders (those under \$5) into these volume brackets. We found that less than one out of every five small orders was made as a convenience to large accounts—\$100 per month and up. The great bulk of small orders were accounts with low monthly volume. In fact, one quarter of these small orders went to 15 outlets with a monthly volume of less than \$25 each.

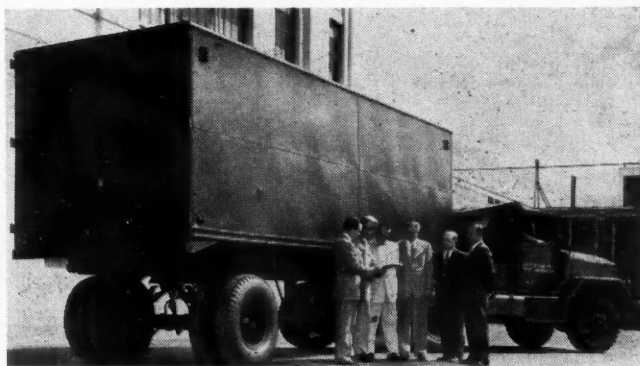


▲ Willys-Overland reenters the passenger car field with this 1952 model. The engine is an F-head 6 with a bhp of 90 at 4400 rpm. It has an integral frame, new steering linkage and new front and rear suspension system

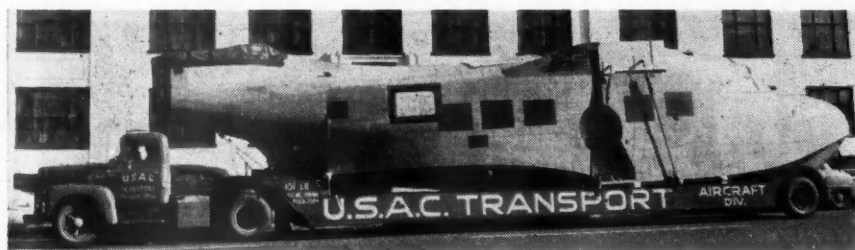
▼ Over 300 dials and instruments in this Chevrolet sedan delivery tells Gale Hall Engineering operators details of highway condition, temperature and vehicle function and other measurements as the unit travels over the road



PICKED **pix** OF INTEREST TO FLEETS

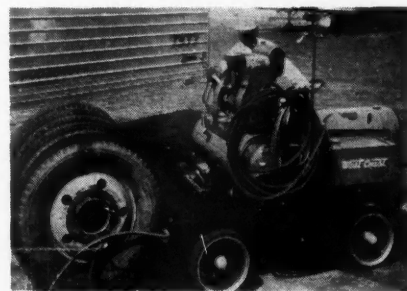


▲ Trailmobile has developed this pilot model military 6-ton trailer which can be used as a platform, stake, rack, or van as the body is bolted to the frame. The design of the chassis is expected to become army standard

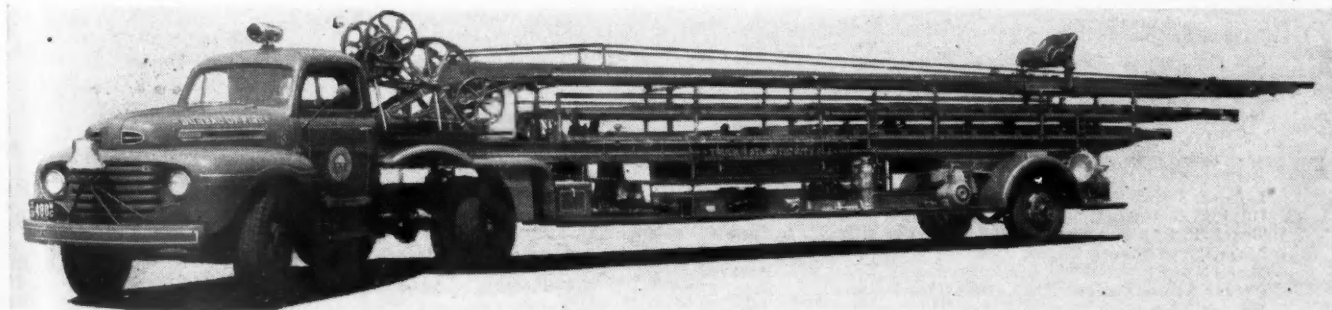


▲ A special trailer was needed to transport this assembled plane hull from a Chrysler plant in Evanston, Ill., to Bethpage, L. I. It is 60 ft long, 13 ft 10 in. high, 8 ft wide and weighs 4300 lb. The trip is 970 miles over routes governed by various overpasses

▼ This aerial ladder truck is one of five made by the maintenance mechanics of the Atlantic City, N. J., Fire Department. It weighs 22,300 lb and is 61 ft long equipped. For a round up of how the firemen made five fire trucks see CCJ March issue, Page 68



▲ A tire carrier used at the West Coast Fast Freight home shop in Los Angeles, Calif., was converted from army surplus by shop superintendent Art George. It measures 10 ft, and will carry five wheel assemblies, an air compressor, hoses, jacks and hand tools



YOU SAW IT ^{first} in CCj

AN ABRIDGED INDEX OF 1951 EDITORIAL FEATURES

A final peek at 1951 features, designed to help you find articles you may have missed, want to read again, or file for future reference

For regular departmental features, see index on page 2 of each issue

BODIES

	Page
Local Delivery an Body.....	Feb. 62
Standard Parts in Modern Refrigerated Body.....	May 70
Retail Delivery Body Features Individuality.....	July 72
Streamlined Van Provides Maximum Payload.....	Sept. 70
Welded Fabrication in Dump Body.....	Sept. 132

COMPONENT DEVELOPMENTS

GMC Convertible Gas and Diesel Engine.....	Jan. 94
Waukesha Diesel Line	Feb. 108
Timken Top-Mounted Final Drive Axle.....	Feb. 106
Reo High Compression LP Gas Engine.....	May 78
Federal Heavy-Duty Axles	June 124
Reo Gold Comet Engine as Package Unit.....	June 126
Cemco's Power Takeoff for Compressor.....	June 134
Exide Higher Capacity Battery.....	Aug. 172
Holland-Apgar Safety Fifth Wheel.....	Oct. 118
See also DIESEL ENGINES	

CONVENTION COVERAGE

American Ass'n State Highway Officials.....	Feb. 51
Society of Automotive Engineers—Annual Meeting	Feb. 70
National Council of Private Truck Owners, Inc.....	Mar. 51
Truck Trailer Mfg. Assn.—Annual Meeting.....	Mar. 76
American Trucking Assn.—Spring Meeting	June 66
American Trucking Assn.—Spring Meeting	July 70
Society of Automotive Engineers—Summer Meeting	July 80
Truck Trailer Mfg. Assn.—Summer Meeting.....	Aug. 124
Society of Automotive Engineers—West Coast	Sept. 58
American Transit Assn.—Annual Meeting.....	Oct. 72
National Assn. of Motor Bus Operators	Oct. 72
SAE National Transportation Meeting—Part 1.....	Nov. 10
National Safety Congress	Nov. 14
American Trucking Assns.—Annual Convention.....	Dec. 64
SAE National Transportation Meeting—Part 2.....	Dec. 72

DIESEL ENGINES

GM Convertible Gas or Diesel Engine.....	Jan. 94
Waukesha Diesel Line	Feb. 108
Waukesha 425 cu in. Diesel Engine.....	Apr. 292
New 4-71 and 6-71 GM Diesel Engines.....	Sept. 72

EXPERIENCE HANDBOOK

Life of Front Spring Assemblies	Jan. 67
Buying Practices Survey	Feb. 67
Truck Tire Cost Averages .012 Cents per Mile.....	June 67
Majority of Fleets Check Front End Regularly.....	July 67
Majority of Front Tires are Balanced on Vehicle.....	Aug. 67
Driver Abuse Causes Premature Tire Failure.....	Sept. 67
Proper Tire Care Pays Mileage Dividends	Dec. 67

FLEET OPERATIONS

	Page
Wage Incentive—Gallagher Transfer.....	Feb. 52
How Can Transportation Costs Be Reduced?.....	Mar. 6
Rice Truck Streamlined Record System.....	Mar. 56
Victor-Lynn's Trucks and Boats Unite.....	Apr. 230
Carriers Coordinate Services for Long Shipments.....	May 60
Adley Express Microfilm Filing.....	May 72
Chadwick Army Bus Reconditioning.....	June 54
Fink Bakery Truck Buying Practices.....	June 70
Bottler's Palletizing Program	Aug. 70
Controlling Road Failures	Sept. 6
Simplified Inventory System	Sept. 90
Motor Truck Service Inc. Truck-Trailer Service.....	Sept. 114
Mobile TV Caravan for Army Signal Corps.....	Oct. 178
Consolidated's Terminal Conveyor System.....	Oct. 198
Art Treasures Travel in Van-Type Boxes	Oct. 114

HIGHWAYS AND TRANSPORTATION

DTA's Knudson Speaks for Uniform Highway Code..	Feb. 51
"First Final" Report of the Maryland Road Test...	Feb. 64
Transportation Can't Afford Highway Stagnation...	Mar. 30
New Jersey Turnpike, Milestone in Highway Construction	Mar. 52
How Fast Is 20 MPH?.....	May 20
Rapes of Wrath (highway-truck feud).....	May 51
Should We Overhaul Our National Transportation Policy?	Aug. 61
A Quick Look at Motor Transportation U. S. A.....	Aug. 62
Nothing Wrong With Highways But Highways Themselves	Oct. 20
New Jersey Turnpike's Fantastic Engineering.....	Oct. 112
ATA Campaigns "Project Adequate Roads".....	Dec. 64
A Sensible "Cease-Fire" for Highway Arguments...	Dec. 20

INDUSTRY STATISTICS

Complete Bus, Truck Statistics.....	Apr. 128
Defense Contract Awards	Apr. 300
New Truck Registrations.....	Each Issue, see Index
Truck Factory Sales	Each Issue, see News Report
Truck Trailer Shipments	Each Issue, see News Report

LEGISLATIVE DEVELOPMENTS

Washington Runaround	Each Issue 37
Legislative Outlook for 1951.....	Feb. 57
Court Decisions on Highway "Rut Accidents".....	Feb. 144
Fuel Sales to Red China Denied.....	Feb. 178
Transportation Can't Afford Highway Stagnation...	Mar. 20
Highway Mobilization Chart	Mar. 69
Gasoline, Diesel, and LP Gas Taxes.....	Apr. 128
State Size & Weight Limits.....	Apr. 182
Safety Equipment Required & Permitted.....	Apr. 135

	Page
New York Enacts Ton-Mile Tax.....	Apr. 162
MD Test Cost N. Y. Taxpayers up to \$30 Million a Year	Apr. 20
ICC Rules Ban Trip Leasing.....	June 98
Are You Complying Fully with the Wage-Hour Law?	July 74
Most New Legislation Good.....	July 82
Industry Advisory Committees Comprise Top Industry Experts	July 121
Questions & Answers on the New York Truck Mileage Tax	Aug. 106
Crossing Accidents Still Judged on Old "Pennsylvania Rule"	Oct. 71
Ten States Require Fender Flaps.....	Dec. 100
Self Employed Fleetman Now Under Social Security	Dec. 108
Report of Senate Committee Indicates Trouble Ahead	Dec. 126

MECHANIC RETRAINING GUIDE

How to Pack a Wheel Bearing.....	July 69
How to Read a Micrometer.....	Aug. 66
How to Grind a Valve.....	Sept. 69
How to Hone a Cylinder.....	Oct. 70
How to Put on Tire Chains.....	Dec. 71

NEW TRUCK MODELS

Light GMC's for 1951.....	Jan. 74
International Harvester Cab-Forwards.....	Jan. 84
Dodge B-3 Models	Feb. 72
Freightliner COE Tanker.....	Feb. 130
Diamond T Heavy Duty Line.....	Mar. 72
White's New Mustang Engine.....	Mar. 74
International M-51 Military Dump Truck.....	Mar. 164
Dodge Army ¾-Tons.....	June 186
GMC M-135 for Army.....	Aug. 96
Turner Transfer's Tall Tractor.....	Aug. 134
Kenworth Truck-Bus Combination.....	Oct. 180
Federal Series 3400.....	Nov. 60
Brown COE Tandem.....	Dec. 74

PERSONNEL, TRAINING & SAFETY

Follow Safety Tips in CCJ Bulletin Board.....	Each Issue 23
Attitude . . . Key to Accidents (Buck).....	Jan. 51
Dr. Pepper's Driver Pep Talks.....	Jan. 59
Management & Unions Cooperate for Safety.....	Jan. 62
Manpower, Ways to Maintain It.....	Feb. 20
Gallagher Transfer's Wage Incentive.....	Feb. 52
*N. Y. Transit Property Cuts Accidents 34%.....	Feb. 54
Safety Equipment Required & Permitted.....	Apr. 135
Passing Accident Problems.....	Apr. 202
Labor Relations Material Sources.....	Apr. 230
Training, Key to Safe Driving (Buck).....	June 51
LP Gas Can Be Safe As Gasoline.....	June 62
Rice Truck Lines' 4-Point Safety Program.....	June 72
*Fleet Doctors Tell How to Cut Accidents.....	July 64
ATA Introduces Stop-Tailgating Campaign.....	July 71
President's Safety Conference Challenges Nation.....	July 88
Garrett's Safety Cuts Insurance Bill.....	Aug. 52
Sun Training Schools Promote Precision Tests	Aug. 58
Prepare Drivers to "Tell it to the Judge".....	Sept. 55
Northern Pacific's Driver Training.....	Sept. 56
*Accidents Drop at Seattle Transit.....	Sept. 62
Badger Lines Wins Seven Safety Awards.....	Sept. 74
Penn State Grooms Good Drivers.....	Sept. 80
Accident Prevention (National Safety Congress).....	Nov. 14

*Features Bus Operation

PUBLIC RELATIONS

Highway Transportation—Giant or Pigmy.....	Jan. 20
Good Public Relations—It's Your Duty.....	May 66
P.I.E. Provides Six Highway Courtesy Cars.....	June 136
Shall the Motorist Be Helped or Damned?.....	July 20
MTA's Self-Policing Mission.....	July 62
A Lesson in Transportation at Grass Roots Level.....	Sept. 20
California Tells the Public a Transportation Story.....	Sept. 51
Labatt Boosts Good Will, Booms Community Security	Oct. 60
Emergency Kitchen Made By Volunteers.....	Oct. 110
The Driver, Key Man in Public Relations.....	Dec. 51

SHOP MODERNIZATION

John Labatt's \$500,000 Home.....	Jan. 52
Garrett's Super Shop Cuts Costs.....	Sept. 52
N. Y. Transit Ventilation Control.....	Sept. 82
A Formula for Fleet Shop Planning.....	Oct. 51
Louisville's Special Shop Equipment	Oct. 54
Dynamometer Developed For Dual-Drive Trucks.....	Oct. 130
Convertible Stands Aid Engine Overhaul.....	Dec. 56

SPECIAL VEHICLE EQUIPMENT

	Page
Holland-Apgar Safety Fifth Wheel.....	Oct. 118
Home Made Drip Truck Speeds Gas Main Servicing.....	Mar. 63
Five Fire Trucks for the Price of One.....	Mar. 68
Magnet Clears Road of Nails.....	Apr. 172
Manhole Cleaner Saves Time Removing Mud.....	Apr. 294

SPECIFICATIONS

Trucks	Each Issue, see Index
Truck Maintenance	Apr. 77
Engines	Apr. 112
Engine Power Ratings, Truck & Bus.....	Apr. 138
Transmission Ratios	Apr. 140
Third Axles	Apr. 143
Bus Maintenance	Apr. 102
Buses	Apr. 144
Component Parts Table	Apr. 156
Fan Belt Data	Apr. 258

TECHNICAL—MAINTENANCE

"At Your Service"	Each Issue, 10
LP Gas, Principles of Operation.....	Jan. 70
Carbon Monoxide and LP Gas Engines.....	Feb. 6
Used Oil Analysis Exposes Engine Condition.....	Feb. 60
Precision Overhaul Liquidates Dry Sleeve Problems.....	Mar. 70
Wear Limits of Axles, Brakes, Engine Parts.....	Apr. 68
Trouble Shooting Guide	Apr. 71
Truck Maintenance Specifications.....	Apr. 77
Bus Maintenance Specifications.....	Apr. 102
Passenger Car, Fleet Models, Maintenance Data.....	Apr. 11
Engine Specifications	Apr. 112
Component Parts Table.....	Apr. 146
Fan Belt Data	Apr. 258
Fruehauf Offers Maintenance Service.....	Apr. 260
Chassis Dynamometers, How They Pay Off.....	May 6
Fuel & Lubricant Tests for Light Duty Engines.....	May 68
When Should Crankcase Oil Be Changed?.....	June 6
Light Weight Metals Increase Payload, Profits.....	June 72
Care & Feeding of Cooling Systems.....	June 64
Heavy-Duty Electrical Parts	July 6
Engine Failures Can Be Controlled.....	July 60
Front-end Vibration, Effect on Wear.....	Aug. 6
Fatigue of Metals.....	Oct. 6
Leaf Spring Maintenance.....	Oct. 62
Two-Way Radio at Niagara Mohawk Power.....	Oct. 64
Graph Predicts Vehicle Performance.....	Oct. 66
High Additive Oils Pay Off.....	Oct. 68
Oil Viscosity, Viscosity Index and Pour Point.....	Dec. 54

TIRE TOPICS

Experience Handbook.....	June, July, Aug., Sept., Dec.
Factors Affecting Tire Life.....	Apr. 120
The How of Tire Conservation.....	May 58
Texas Carrier's Campaign Cut Costs by 33%.....	July 58
Balanced Wheels Save Tires.....	July 84
Tire Life Limited in Mountainous South America.....	Nov. 312

TRAILERS

Self-Loading Flatbed Semi-Trailer	Jan. 80
Trailmobile Model A.....	Apr. 190
Fruehauf Van has Nailable Steel Floor.....	Aug. 104
Unicel Introduces Plywood Tandem Trailer.....	Dec. 74

TRUCK & BUS FLEET MAINTENANCE

*Washing Innovations—E. St. Louis City Lines.....	Jan. 56
Advertising Panels on Coast Truck Lines.....	Jan. 66
Paraffin Spray on Flannery's Concrete Trucks.....	Jan. 88
Labatt's Maintenance Averages 1.5 Cents Per Ton-Mile	Feb. 74
*Steel Masks at East St. Louis City Lines.....	Mar. 54
White's Emergency Service Program.....	Mar. 66
*Louisville Railway's Maintenance Program	May 52
200 Fleets Recognized for Maintenance Efficiency.....	May 56
*Balancing Brakes at New Orleans Public Service.....	May 62
*New Orleans PM Program Conserves Manpower.....	June 56
Dumont Cartage Saves 35% on Maintenance Cost.....	June 59
Detroit Creamery Recovers Tanks in Five Days.....	June 75
PM at P.I.E.....	July 51
*New Orleans Fuel Tests Gain 15-20% Mpg.....	July 54
Revised GMC-PM Plan Offered Fleetmen.....	July 132
*East St. Louis Licks Seasonal Daily-Service Handicaps	Aug. 54
Trailer Tricks from Mushroom.....	Aug. 60
Elite Laundry Rinses Out High PM Costs.....	Aug. 64
Parts Inspection Pays (Magnaflux).....	Aug. 72
Goldblatt Cuts Engine Overhauls.....	Sept. 64
*Louisville Boosts Shop Efficiency.....	Oct. 54
*Interim Report of the Transit Cleaning Committee, ATA	Dec. 59
*Capital Transit "Housecleans" 15 Buses Daily.....	Dec. 60
*Features Bus Operation.	

No. 5 How to Check the Distributor

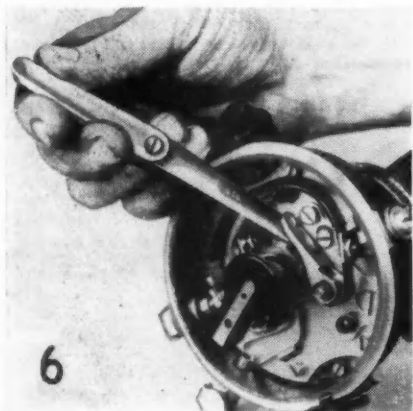


1. Check cap for cracks, corrosion inside cap towers, burned areas. Check rotor for cracks, oxidation at tip, proper seating.

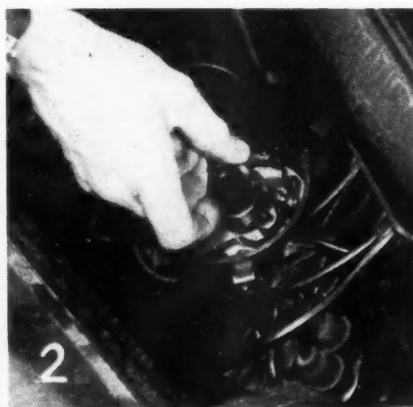
6. Feeler gage can be used with new points, but high spots on old points will give false reading due to uneven surfaces.

7. Contact dwell meter provides one of most accurate methods of point adjustment by measuring number of degrees of cam rotation from time points open until they close.

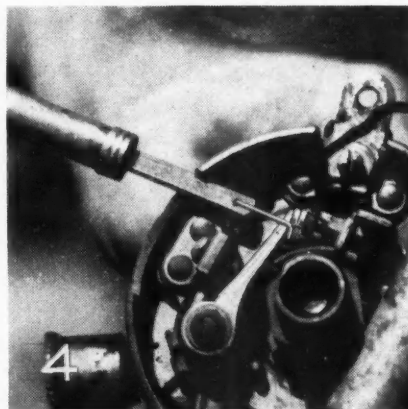
8. Distributor tester offers best method of checking entire distributor for spark gap, centrifugal advance curve, vacuum advance—when unit is off vehicle.



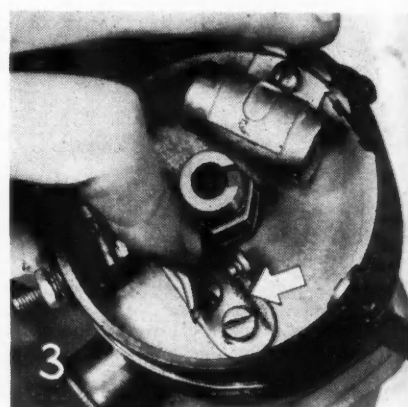
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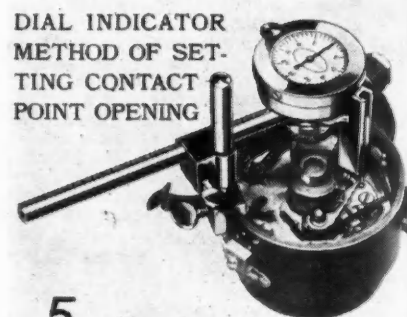
2. Check shaft for looseness at bearings. Check counter weights and springs of centrifugal advance by turning shaft against spring tension.



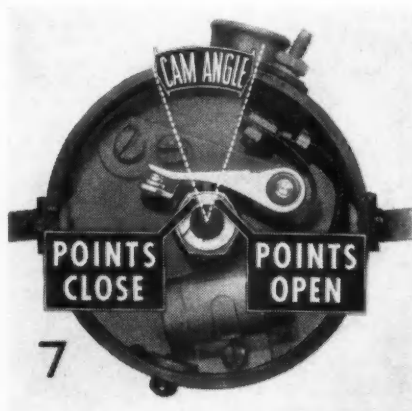
4. Measure breaker contact pressure with scale placed over arm at the contact. Adjust to tension recommended by manufacturer.



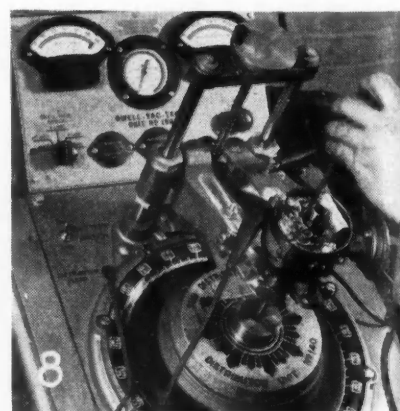
3. Examine contact points for evidence of oxidation and pitting. See that points are aligned, are clean and that rubbing block is in good condition. Examine cam lobes for wear.



5. The dial indicator provides an accurate check of point gap. Recheck adjustment after locking screws have been tightened.



7



8

If Your Drivers Are Complaining About Brakes...

YOU'VE GOT A BIG LOAD ON
BACK SO TAKE IT EASY!

YEAH? HOW CAN I
TAKE IT EASY WHEN
THERE ISN'T ENOUGH
POWER BRAKING
ON THIS WAGON?



When your drivers gripe about the brakes on your trucks being unsafe, the chances are those trucks need stepped-up power braking!

You can easily find out if this *is* your trouble by checking your service records. If the trucks have need for frequent brake relining and brake maintenance it's almost a sure sign that your trucks are under-braked.

In other words, the brakes should be Load-Rated, just as booster springs, bigger tires, and a beefed-up frame are added to handle heavier loads or when your runs are over hilly or rough terrain.

Call your nearest Bendix* Vacuum Power Brake dealer about Load-Rating your brakes. *Only* Bendix* Hydrovac* has a range of models wide enough to let you pick a power brake to exactly fit your load. You don't pay for too much or buy too little when you put on a Bendix Load-Rated Hydrovac. *REG. U. S. PAT. OFF.

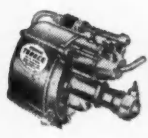
Bendix SOUTH BEND
PRODUCTS DIVISION INDIANA

Export Sales: Bendix International Division, 72 Fifth Avenue, N. Y. 11, N. Y. • Canadian Sales: Bendix-Eclipse of Canada, Ltd., Windsor, Ontario, Canada

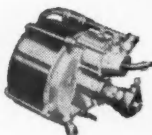


It's Time to
MATCH the BRAKING
to the LOAD with
Bendix
HYDROVAC
THE
"Load Rated"
POWER BRAKE!

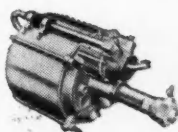
A MODEL FOR EVERY LOAD FROM ½ TON TO THE BIGGEST!



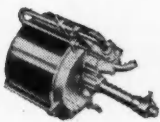
THE TONNER



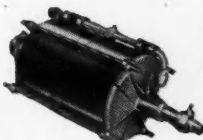
THE SPECIAL



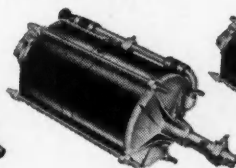
THE STANDARD



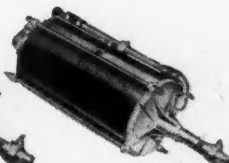
THE SUPER



THE ATLAS



THE MOGUL



THE DREADNAUGHT

Screening Destination Signs Saves 936 Man-Hours

Stencil process, which can be used by any fleet, proves hand painting too expensive

THE PRODUCTION of destination signs, and other vehicle and fleet signs, by the silk screen process finally has gained substantial acceptance. Its fast production and low cost is catching the interest of cost conscious fleets.

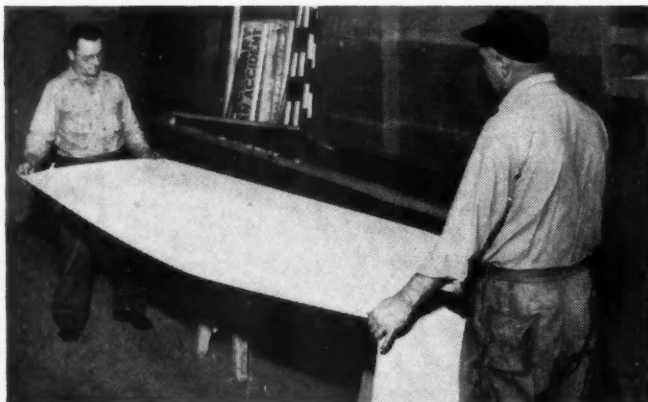
While a great many operation and maintenance procedures in the passenger transportation industry are reasonably standardized, there still are three principal methods of replacing destination signs—purchasing from outside sources, hand painting,

and stencilling, including silk screen.

The use of outside service is by far the simplest and easiest but does not always provide for emergencies with any degree of flexibility, except if the source of supply is nearby. Then, unless produced in quantities, they may be expensive.

Hand painting is laborious, painstaking, and requires experts not too

(TURN TO PAGE 159, PLEASE)



New Orleans' silk screen "press" is simple; smooth table top on saw horses. Cloth is being inserted under screen



Paul Pardue, left, and George Bostick draw squeegees over screen, forcing the paint onto the No. 1 linen material

Bostick and Alvin Schneida, right, remove finished sign as the screen is held up by a cord. Table is 8 ft long



And here Schneida hangs it up to dry. Drying racks were made in the shop. Drying is fast. Screens have long life





For Full Flow where it's needed...

SEALED POWER MD-50 STEEL OIL RING WITH THE FULL-FLOW SPRING

- Ample slots for full flow of oil!
- Can't block any piston oil hole!
- Long curves for greater bearing area!
- Double the drainage with half the drag!
- Thousands of extra miles between ring jobs!
- Best for oil control even in

BADLY TAPERED
and

OUT-OF-ROUND BORES

FOR DOUBLE-RING MILEAGE IN YOUR FLEET



Sealed Power KromeX Full-Flow Ring Sets are the finest ring sets made. Top compression ring is of chrome-hardened iron, with solid chrome face, lapped at the factory to a light-tight finish for quick seating. Chrome on rail faces of the MD-50 ring means twice the mileage.



SEALED POWER CORPORATION, MUSKEGON, MICHIGAN

Sealed Power Piston Rings

BEST IN NEW TRUCKS

BEST IN OLD TRUCKS

FREE PUBLICATIONS

FOR YOUR CONVENIENCE USE THIS POSTCARD

Literature review—Here are ten selected booklets from 1951, offered again in the interest of improving fleet maintenance and operation

L18. Truck Refinishing

This 30-page, illustrated publication on truck and auto refinishing provides valuable information for better planning and operation of the paint shop. The manual features such pointers as shop designing, equipping, operation instructions, cost controls, management, etc.

Instructions include such subjects as removing old finishes, preparing bare metals, masking, priming, puttying, surfacing, sanding, striping and chrome finishing.

L63. Valve Rotator Data

This 64-page booklet provides a complete list of the applications of rotator valve assemblies for all truck and bus applications, gasoline and diesel engine installations. Lists of part numbers are included for the valve rotators and associated parts.

L69. Bearing Maintenance

A continuing study of bearing maintenance techniques and successful maintenance, installation, and removal pro-

cedures is being published in pamphlet form by The Anti-Friction Bearing Distributors Association. A file folder type of binder is available with the pamphlet.

L86. Safe Driving Booklet

This 32-page illustrated "funny" book has been prepared by an insurance company to show the why and where and hows and whens of traffic accidents. Produced in cartoon style and with drivers in the most precarious of situations, this story dramatizes the national traffic toll and indirectly offers suggestions for safer driving.

L91. Welding Manual

This 44-page "Manual of Welding Engineering and Design" showing the use of low temperature welding alloys will serve as a useful guide to new potentialities of the welding science in fleet work. The information covers such methods of heating as torch joining, arc joining, induction joining, furnace joining and inert gas-shielded arc joining.

L95. PM Manual

A new preventive maintenance manual has been published by GMC to show procedures for gasoline and diesel engine-equipped trucks. This new 32-page manual outlines the complete plan and shows exactly how to develop each procedure efficiently and quickly.

L103. Truck Tire Manual

A new 38-page truck tire manual features a special section on tire terms, their meaning, and how they are determined. The manual also tells how to correct conditions which contribute to premature tire failure and increased tire costs. Hints on good driving habits, truck tire repairs, wide base rims, load analysis, specification tables and tire data are also included.

L106. Spark Plug Chart

This handy spark plug wall chart features photographs showing the proper method of installing and cleaning spark plugs, gives the proper torque for tightening spark plugs, illustrates exclusive Auto-Lite accessories and includes a type-equivalent chart, as well as complete specifications for all cars from 1936 to 1951 models. Photographs serve as a reminder of the importance of removing, cleaning, gapping and installing plugs correctly.

L122. Safety Posters

A series of safety poster designed to provide timely messages to drivers of commercial vehicles has been made available to the fleet field by Dayton Rubber Co. These 16 x 22-in. posters can be used on bulletin boards, in drivers' rooms or at loading docks, to improve safety records.

L123. Engine Maintenance

"Practical Pointers on Engine Maintenance" is the title of this 32-page booklet issued by Ethyl Corp. Stressing the importance of fuel in satisfactory engine performance, the booklet points out common troubles found in fuel pumps, tanks and lines, carburetors, air cleaners, valves and ignition systems.

Note: Any or all of these booklets are available to the fleetman upon request via the accompanying postcard. Just list material you want by key number.

P108. Bench Grinders

A new line of wide clearance twin grinders is now available from Baldor Electric Co., St. Louis, Mo., for 6-in., 7-in., and 8-in. wheels. Each unit features a wide distance between the grinding wheels and the motor frame. In addition, the motor housing itself is considerably smaller than the diameter of the wheels. This makes possible the grinding of long objects which may be pressed against either or both wheels without touching the motor housing.

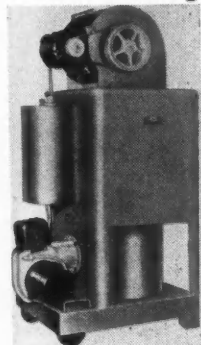
P109. Air-Valve Cleaner

To clean valves and governors in automotive air brake systems without removing, the Panora Co., Chicago, has a sludge-removing chemical which is introduced into the primary tank and circulates through the system, mixing with the sludge. The residue is discharged through the release valve. The chemical may also be used as a bath for badly gummed system parts.

P110. Fuel Flow Analyzer

The Choldun Mfg. Corp., New Haven, Conn., has developed an analyzer to check operating fuel pump flow and pressure, condition of gas lines, carburetor needle and seat, fuel level and fuel pump diaphragm. It may be used in cases where the fuel system of the vehicle is frozen or inoperative as well as when the system is functioning normally.

P111. Garage Heater



A floor-mounted area heater which circulates warm air along the floor level is being made by Fageol Heat Machine Co., Detroit, Mich. The manufacturer states that, by blowing warm air out of the machine's base along the floor, it creates a 6-ft heat blanket and eliminates the necessity for heating vast overhead areas in order to keep workers comfortably warm.

P112. Mud Guard

Specially designed for use on dump body trucks, a mud guard now being made by Velvac, Inc., Milwaukee, Wis., has reinforced holes molded into the corners. A ring can be mounted on the corner, permitting the guard to be hooked up for dumping. When the truck is working off the highway for any period of time, the guard can be fastened forward under the body of the truck.

NEW PRODUCTS

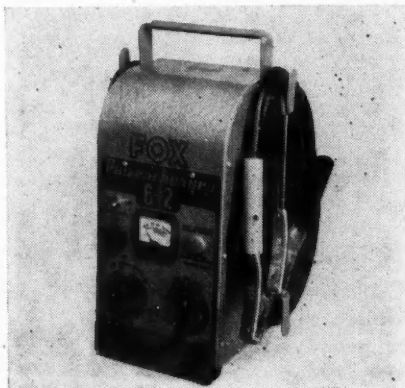
FOR YOUR CONVENIENCE USE THIS POSTCARD

**Illustrating and reviewing newest developments
in parts, accessories, shop equipment and tools.**

For more information use the attached postcard.

P113. Battery Charger

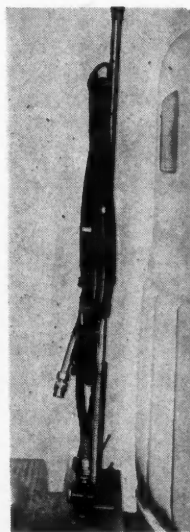
A portable 6-12 v charging unit designed for truck or bus service has been introduced by Fox Products Co., Philadelphia, Penna. It fast-charges at a maximum of 90 amp and will slow-charge up to six 6-v batteries with a full range of charging rates. It may also be used as a starting booster.



Two self-resetting circuit breakers cut off power in the event of a short or overload. A signal light flashes when the unit is hooked up in reverse or when the unit is shorted or overloaded.

P114. Hose Keeper

A tubular metal shaft mounted on a crossbar behind the tractor cab will keep the air hoses suspended by a strap arrangement and provide an air-tight coupling when the lines are not in use. It is made by Vari-Products Co., Chicago. The "Hose Tenna" flexes on turns to allow the hose to follow the arc of the trailer, then springs back to erect position.



The column may bend in all directions except toward the cab, in this way protecting the hose from back-slapping, rubbing, or wearing away the cab finish.

Provision is also made to hold excess electric cable.

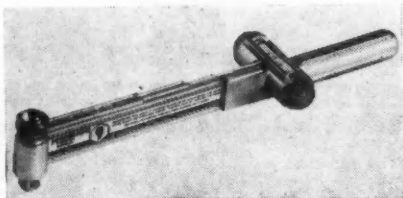
(TURN TO NEXT PAGE, PLEASE)

New Product Descriptions

Continued from Page 75

P115. Torque Wrench

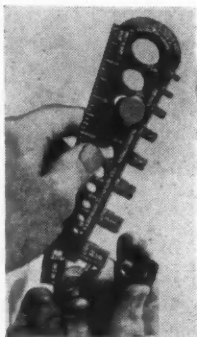
Blackhawk Mfg. Co., Milwaukee, Wis. has a new $\frac{3}{8}$ in. drive "Torkflash" tension wrench that has a capacity of 50 ft lbs. A flash of light tells when the proper amount of torque has been applied.



The tension scale has all units of measure found in service manuals including readings in in. lb, ft lb, scales for various spark plugs sizes, and scales for iron and aluminum cylinder heads.

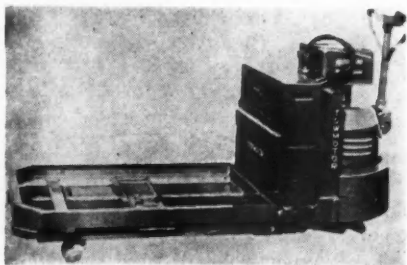
P116. Bolt-Nut Gage

Sorrell & Sons Co., Rocky River, Ohio, has developed a pocket size bolt and nut gage that will size bolts and screws from No. 8 through $\frac{3}{4}$ in. diameter, nuts from No. 8 to $\frac{5}{8}$ in. diameter, and will identify USS or SAE threads.



P117. Platform Adapter

To convert a standard fork lift truck to a platform type lift, Towmotor Corp., Cleveland, Ohio, recommends this



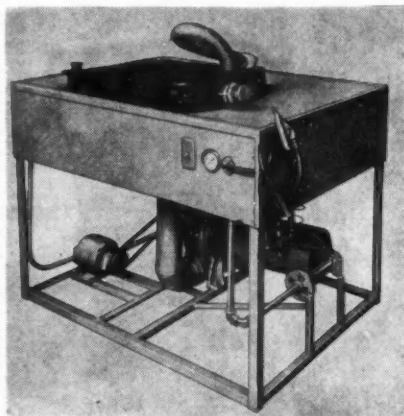
adapter designed for the Towmotor "W" electric. The component may be used on standard forks up to 72 in. long, and 27 in. o.d. across the forks.

When not in use, the platform folds up against the chassis of the truck,

held in place by a spring clip. The regular forks may then be used.

P118. Leak Detector

This radiator leak detector developed by Inland Mfg. Co., Omaha, Neb., is bench-high with a flat top on which the radiator coil is placed. Mounted under the work table is a heating unit and compressor, driven by a standard electric motor. When taken from the cleaning solution, the radiator coil is placed on the work table and a closure is placed in the filler opening. A nozzle is then attached to the upper hose connection, connected to the heater-compressor by a flexible cable. A stream



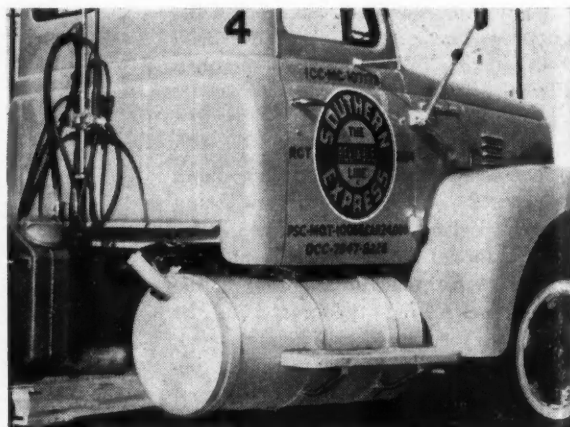
of heated air is circulated inside the coil to dry moisture from the interior surfaces, to aid in locating small leaks.

P119. Power Take-Off

A new heavy-duty power take-off to fit all standard trucks is announced by Davey Compressor Co., Kent, Ohio. A vacuum shift control is featured. The take-off unit itself is identical for all

P123. Under-Cab Tank

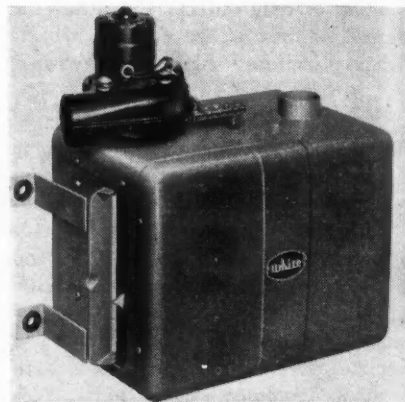
Filled with 120 gal of gasoline, this step-type saddle tank, developed by Prior Products Inc. of Dallas, Texas, will shift approximately 500 lb of weight to the front axle. The tanks hold 60 gal each and are mounted on both sides, under the cab.



trucks, as there are special mounting parts for the individual truck makes.

P120. Cab Heater

Designed by White Motor Co. and Evans Products Co., Plymouth, Mich., a heater-defroster has been produced for use in the White series 3000 trucks. New design features of the unit are: the 9-in. heater fan, separate motors



for heater and defroster, and a system whereby the heater motor is used in only the coldest weather. The latter is accomplished by having fresh air circulating over the heating area in proportion to the speed of the truck. This intake is controlled through the dash by a multi-vane shutter.

P121. Fender Flaps

Truck fender flaps made by Morton Specialties Co. of Norwalk, Ohio, use double thick cord rubber at the top, providing reinforcement at the point of installation. Another reinforced area is at the bottom, where the rubber forms a stiffener which keeps the flap from curling and warping in the wind.

P122. Air Compressor

For air systems needing 125 lb or 175 lb compressors, DeVilbiss Co., Toledo, Ohio, has two 4-cyl models rated at 3 hp and 5 hp respectively.



The new Exide ULTRA START is your kind of battery—a fleet operator's battery. It's built to stand the most rugged truck service. And the ULTRA START is ready and able to deliver peak battery performance, day after day, in all weathers . . . and for a longer time.

THREE EXCLUSIVE LONG-LIFE FEATURES

SILVIUM the corrosion-resistant grid alloy, defeats a battery's most destructive enemy—grid corrosion caused by overcharging.

ACTIVE MATERIAL a new formula. So effective that it is possible to take full advantage of the benefits of an acid solution of lower specific gravity.

FORMAX practically indestructible plastic separators. Extremely resistant to heat and acid . . . flexible and tough. Low internal resistance increases cold-weather starting ability.

PLUS—Vitrex Retainers . . . Element Protector . . . Plastic Connector Shields . . . Plastic Vent Caps . . . Improved Sealing Compound . . . Shock Resistant Container.

INVESTIGATE NOW! Learn why the long-life ULTRA START is your best battery buy . . . at any price.

THE ELECTRIC STORAGE BATTERY COMPANY
Philadelphia 2

Exide Batteries of Canada, Limited, Toronto

"EXIDE" "FORMAX" and "VITREX" Reg. Trade-marks U. S. Pat. Off.
"SILVIUM" and "ULTRA START" T. M. Reg. applied for.



WHEN IT'S AN **Exide** YOU START

1888 . . . DEPENDABLE BATTERIES FOR 64 YEARS . . . 1952

1951 New Truck Registrations by Makes and States*

STATE		Auto-car	Brook-way	Chevrolet	Diamond T	Divco	Dodge	Federal	Ford	FWD	GMC	International	Ken-worth	Mack	Peter-bilt	Reo	Sterling	Stude-baker	White	Willys	All Others	Total
Alabama	October	1		850		6	283	1	709		332	275		16		3		129	14	41	2	2,682
	10 Mos.	9		7530	12	25	1755	8	5130	1	1955	1274		140		31		643	172	298	20	19,013
Arizona	October	5		200			65	2	168		64	69	2	4	1	2		13	6	24	6	631
	10 Mos.	12	2	2030	9	11	665	6	1415		685	496	14	18	6	23	2	204	62	175	31	5,866
Arkansas	October	1		748			185		561	1	256	203		7		1		90	7	46	1	2,109
	10 Mos.	2		6933	12		1545		4728	2	2424	1360		37		31		659	83	298	11	18,125
California	October	23		1794	42	10	733	4	1337	11	694	585	21	38	23	13	7	207	89	154	16	5,771
	10 Mos.	196	8	17626	375	303	7442	31	12953	98	6784	4188	217	387	217	123	98	1906	473	1108	130	54,653
Colorado	October			301		8	63		235		92	116	2					29	4	43	1	894
	10 Mos.	22		3993	20	42	894	8	2807	8	1176	985	18	45		30		339	39	432	27	10,886
Connecticut	October	4	8	306		9	96		182		66	131		37		10	3	24	12	16	3	923
	10 Mos.	50	60	2283	85	82	849	37	1535	1	548	724		282		60	11	206	111	207	22	7,153
Delaware	October			93			23		89		21	43		1				12			1	287
	10 Mos.	5	11	823	12	5	224		721	1	169	259		13		11		74	16	29	9	2,382
Dist. of Col.	October	2		69			5		66		31	36						2	3	3		245
	10 Mos.	9	3	901	23	38	261	6	518		320	267		15		18		20	33	65	6	2,507
Florida	October			642		9	265		582		189	221		37		10		133	40	68	8	2,190
	10 Mos.	8	2	6443	129	62	2536	4	4656	2	1584	1296		293		101		986	195	880	106	19,243
Georgia	October			912			262		630		213	205		20		6		121	29	28	4	2,430
	10 Mos.	2	7	10159	26	15	2492	6	7499	2	2606	1862	1	218		54	2	1139	223	377	43	26,733
Idaho	October			200			66		216		99	82	2	6	2	2		36	4	44		760
	10 Mos.			2042	43	5	632	13	1824	1	1082	761	41	55	2	18	1	291	41	475	7	7,034
Illinois	October	1		1326	50	26	465	2	1040	2	308	528		13		15	5	101	57	80	27	4,046
	10 Mos.	46	5	14189	567	210	4929	26	9097	7	3494	4724	1	252		138	28	1005	569	851	134	40,072
Indiana	October	1	2	822		10	6	299	11	701		197	402		30		7	170	48	80	8	2,864
	10 Mos.	5	3	8775	94	72	2790	23	8272	5	1804	3282		168		101		1244	468	454	81	25,611
Iowa	October			598		6	183		489		141	394		2		3		64	18	29	7	1,937
	10 Mos.	1		6922	92	32	1685	3	5357	1	1402	2868		82		27		580	140	258	38	19,456
Kansas	October			649		4	154		557	3	212	296	1					80	13	60	5	2,039
	10 Mos.			6396	42	29	1351	7	4299	5	1657	1902		11		17		489	119	376	16	16,717
Kentucky	October			494		2	143		402		141	175				2		57	7	49	2	1,477
	10 Mos.	6		6021	53	22	1395	7	4210	2	1581	1497		48		29		534	81	620	22	16,128
Louisiana	October	4		624		4	146		532		206	163		5		2		78	7	16	1	1,789
	10 Mos.	13		6295	85	13	1194		5026	5	1896	1215		37		7		680	67	301	12	16,846
Maine	October	1		199			54	2	180		73	102		11				25	5	23	1	676
	10 Mos.	8	12	1649	5	4	393	10	1238		517	453		108				185	51	169	10	4,812
Maryland	October	3	9	383		1	175	2	273		99	200		18		8		28	27	18	7	1,272
	10 Mos.	26	65	3273	15	82	1188	51	2322	1	873	1033		191		54	6	214	149	166	14	9,723
Massachusetts	October	14	11	386		6	11	155	3	320		111	164		37		12	46	30	22	8	1,338
	10 Mos.	179	93	3894	104	144	1871	37	3189	6	1066	1172		302		128	39	380	310	242	43	12,879
Michigan	October	10	1	1028		11	27	405	2	1075		274	238		12		23	76	25	66	7	3,280
	10 Mos.	59	2	12810	101	231	3929	81	11287		2876	2308	1	190		245		691	291	444	49	35,575
Minnesota	October			569		7	271		538	2	113	323	2	6		2		85	14	44	4	1,986
	10 Mos.	5		5717	59	41	1891		4620	19	1405	2386	18	65		32	1	715	117	333	60	17,484
Mississippi	October			764			146		511		294	182		10				102	1	36	3	2,049
	10 Mos.			6799	5		1306	7	4443	1	2492	1271		57		3		583	60	392	10	17,429
Missouri	October	1		1081		6	337		790	3	366	342		10		6	1	100	53	49	4	3,155
	10 Mos.	11		11257	63	100	2974	2	7209	3	3355	2372		92		59	3	806	480	386	32	29,204
Montana	October	1		211		4	60		241		89	159	2	3		3		40	4	85	1	903
	10 Mos.	1		2419	41	5	521	4	1768	4	821	971	24	38	5	39		294	45	359	4	7,561
Nebraska	October			538		17	116		502		194	298	3	5		6		77	22	71	3	1,853
	10 Mos.	5	1	5302	138	15	928		3717	5	1579	1899	30	52		34		520	127	496	21	14,867
Nevada	October			39			12		42		17	12						5	1	8		136
	10 Mos.			497	4		172		319	1	303	145				1		47	4	63		1,556
New Hampshire	October			93		2	23		60		19	30		5				6	2	15	2	280
	10 Mos.	10	11	942	6	17	289	3	712	2	270	257		84		15	1	98	20	120	12	2,889
New Jersey	October	7	29	741		11	224	6	556	1	200	241		48		5	2	67	29	45	6	2,231
	10 Mos.	178	339	7283	133	253	2275	74	5046	12	1876	1757		562		98	21	476	438	545	67	21,430
New Mexico	October	2		189		1	46		125		78	69		4	1	10		23	2	33	1	574
	10 Mos.	4		2045	5		398		1156	2	733	380	2	32	2	27		221	13	172	11	5,184
New York	October	45	47	1320	37	41	540	3	1154	7	323	500		182		27	3	100	87	106	27	4,549
	10 Mos.	306	673	13562	476	386	5638	111	8920	41	3524	4237		1371		480	30	922	1075	1053	251	43,056
North Carolina	October	1		937		2	9		314		735	280		42		1		166	29	52	5	2,901
	10 Mos.	58	4	8228	28	78	2138	8	6497	1	2643	1950		383		35	3	970	288	448	261	25,007
North Dakota	October			196		1	52		221		75	212						26		29	1	813
	10 Mos.			1976	9	5	556	7	1821		494	1153		1		3		239	4	178	4	6,250
Ohio	October	5	2	1183	28	36	479	3	1030		285	629		24		17		186	129	109	21	4,166
	10 Mos.	105	12	13117	215	309	4471	57	10087	14	3119	4194		431		229		1245	1111	1004	116	39,836
Oklahoma	October	1		650		3	186	1	473	2	206	254		13		2		63	25	23	1	1,906
	10 Mos.	1		7051	6	47	1643	2	4813	32	1745	1616	8	38		28		503	206	271	13	18,023
Oregon	October	5		358		9	150	3	373		194	180	12	22	1	2		49	14	155	5	1,547
	10 Mos.	19		3830	79	34	1557	19	2572	1	1560	1426	75	200	17	25	9	381	151	842	61	12,886
Pennsylvania	October	16	54	1452	16	28	659	12	1183	1	342	629		97		21	2	156	84	104	16	4,871
	10 Mos.	217	531	14459	251	173	6201	103	10417	11	3711	4869		1001		221	25	1220	918	1009	169	45,506
Rhode Island	October	14		68		4	26		74		13	26		4				11	7	5	1	255
	10 Mos.	59	5	762	17	23	274		730		177	250		50		2		81	57	47	7	2,543
South Carolina	October	1		542			121		283		106	116		6		1		56	11	3	2	

MACK TRUCKS

Keep Pace...

WITH YOUR STEPPED-UP PRODUCTION

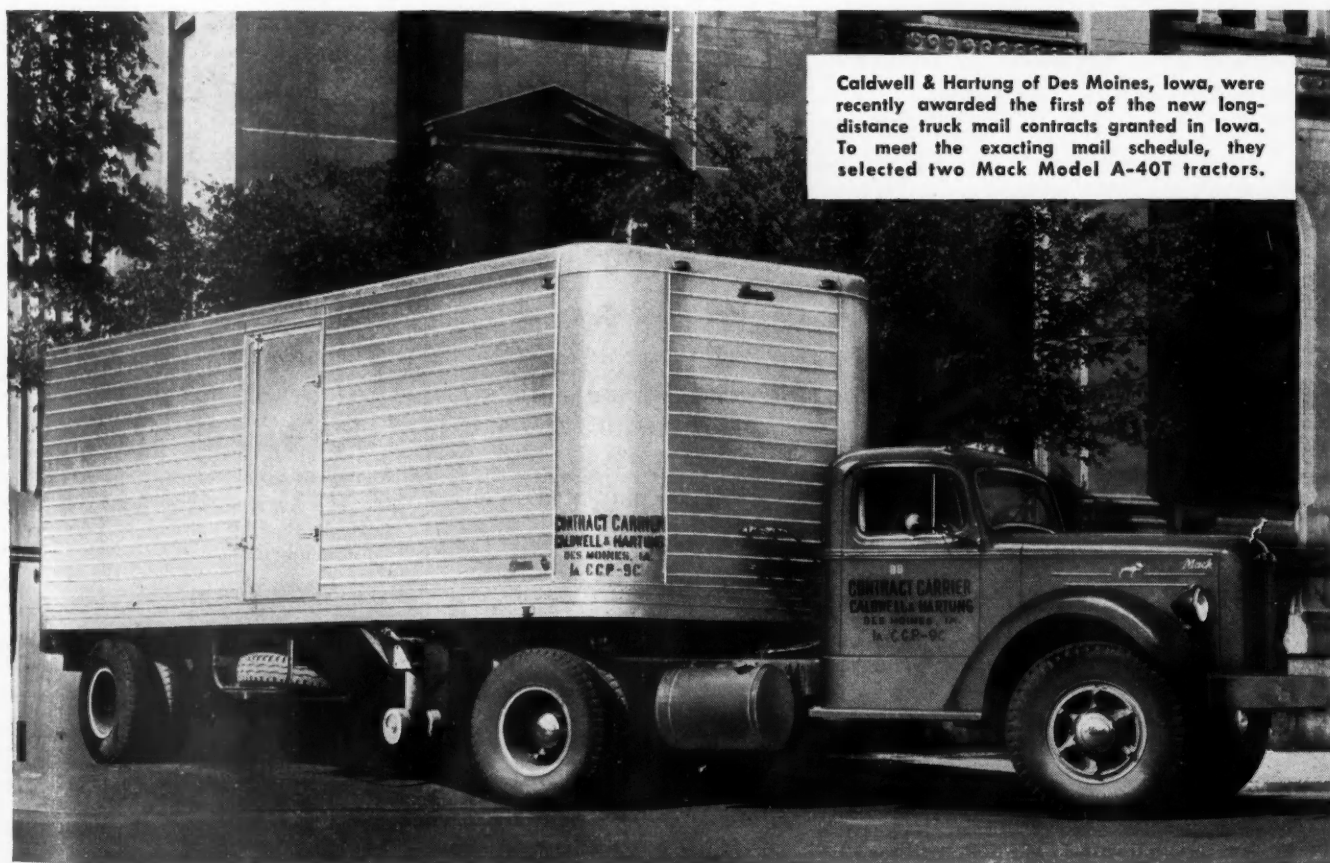
Today's conditions call for trucks that can keep pace with accelerated production schedules. More and more truck owners are realizing that trucks are really "Tools of production"...that intensified service makes doubly important the extra durability and sustained reliability they get from hard-working Macks.

Make sure *your* truck equipment measures up to the rigors of present-day demands. See your nearest Mack branch or distributor for the right truck for your particular job. Prove to your own satisfaction that "Built Like A Mack" means uninterrupted production...extra long life...more tonnage moved at lower cost for many years to come.



outlast them all

Mack Trucks, Empire State Building, New York 1, N. Y.
Factory branches and distributors in all principal cities for service and parts. In Canada: Mack Trucks of Canada, Ltd.





INTRODUCING . . .

. . . R. F. DAVIS, regional manager, of the eastern region, Cummins Engine Co., with offices in the Chrysler Building, New York City. WALTER N. WESTLAND, former eastern regional manager, Cummins Diesel of New England, Inc., with headquarters at Allston, Mass. R. P. PARSHALL, has joined the Cummins regional organization, as regional manager, Cummins southeastern region, with headquarters at Atlanta, Ga.



. . . F. E. JAMES (Left), new manager of Fire Apparatus Div., Mack Motor Truck Corp. and D. C. WHEELER (Right), vice president and manager of the company's Central division with offices in Chicago, Ill.



. . . E. P. LETSCHER, as Dodge sales supervisor in Detroit, Mich.

. . . HAROLD M. GREEN, appointed manager of the Trailmobile Co. branch in Buffalo, N. Y.



. . . E. M. SLONAKER, as vice president in charge of sales of the Willard Storage Battery Co. of California with offices in Los Angeles.

. . . JAMES J. LARKIN, as fleet sales manager, Ford Division, Ford Motor Co., Dearborn, Mich.

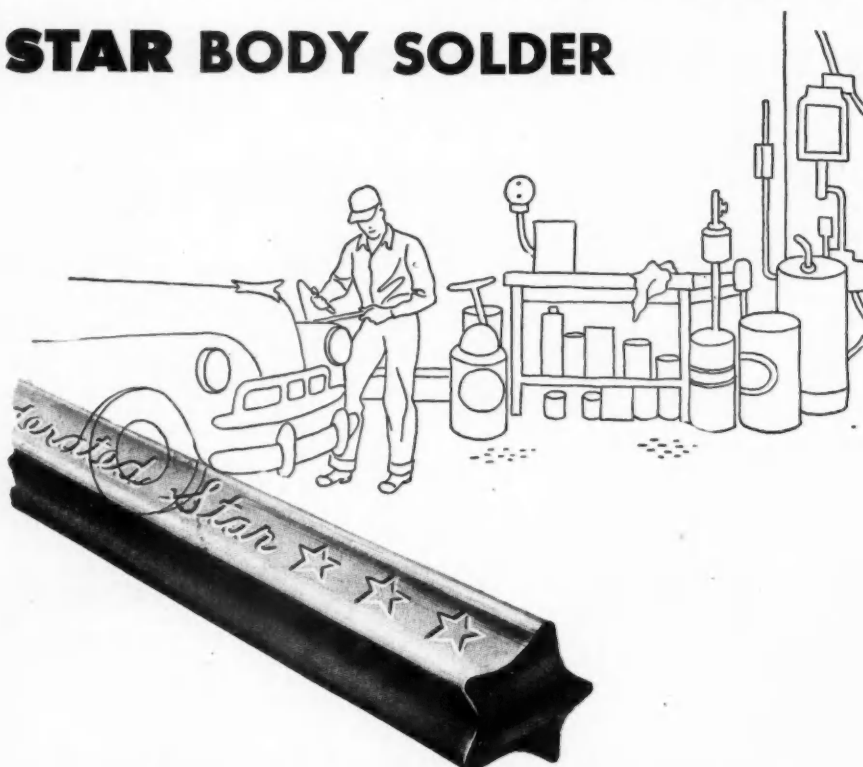
. . . EDGAR H. FRANCOIS, as sales manager of replacement products for AC Spark Plug division of General Motors. His office will be in Flint, Mich.

. . . RICHARD J. WILSON, of the sales promotion staff of Martin-Senour Co. of Chicago.

. . . EARL R. PRICE (Right), appointed chief engineer of vacuum power products, and W. R. WILLIAMS (Left), executive engineer, Bendix Aviation Corporation, South Bend, Ind.



STAR BODY SOLDER



Melts Quickly . . . Handles Easily

Federated STAR* Body Solder is the easiest bar solder you can use in the body and fender shop. The STAR shape exposes the solder in thin points to the torch so that you get quicker and more even melting than with old-fashioned bars. Also, the ribbed effect of the STAR shape makes the bar easier to handle!

STAR is outstanding because the alloy stays plastic long enough to paddle to a smooth, porosity-free, mirror-like surface, yet does not run and drop on the floor, causing wastage.

Your local jobber has STAR Body Solder.

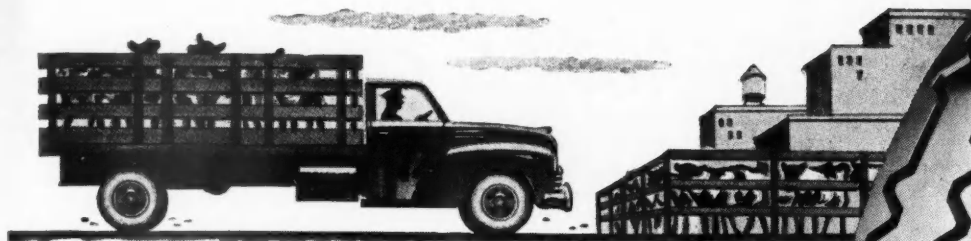
*Trademark of American Smelting and Refining Company

Federated Metals Division

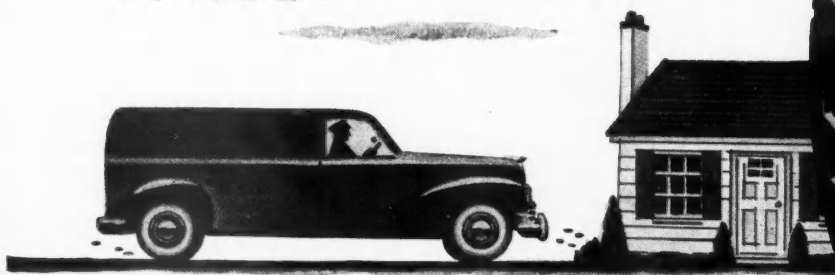


AMERICAN SMELTING AND REFINING COMPANY • 120 BROADWAY, NEW YORK 5, N. Y.

Steers to Market...



Steaks to the Home...



FASTER, AT LOWER COST

ON THE **GENERAL RIB-HIGHWAY**

**THE
GENERAL
TRUCK TIRE**

KRAFT
SYSTEM
RECAPPING
A GENERAL TIRE SERVICE

MORE ORIGINAL MILES

Engineered so that each thick, deep-grooved safety rib works together to spread the load evenly over the entire surface. The result is slow, even wear for thousands of extra original miles that mean more deliveries at less cost.

MORE RECAP MILES

Heavy shock-absorber plies prevent blistering, buckling and separation. More miles of rayon cord in a stronger carcass enables General Tires to take recap after recap for thousands of extra low-cost miles.

THE GENERAL TIRE & RUBBER CO., AKRON, OHIO

REQUEST GENERAL TIRES ON YOUR NEW EQUIPMENT

Four Factors Cut Truck Investment

Continued from Page 51

trucks assume the category of a tool, and therefore, are often oversized. This type of thinking is also prevalent in oil production fields, construction work, and perhaps other operations, whereby, bodies are constructed to last over long periods with the aim of providing vehicles which can be maintained in service the maximum number of days per year for the maximum number of years. Investment per vehicle

in the fleet is high, and this investment is made with the intention and under necessity of providing the most efficient and reliable tool obtainable, not necessarily restricted for hauling operation, but for facilitating the work of the man or men to whom the vehicle may be assigned.

Another form of oversizing of equipment was brought to light in bus operation, where higher unit cost of a larger carrying

capacity vehicle reduced over-all capital expenditure. For example, a 50 passenger bus costing \$20,000 was found to be more practical than a 40 passenger bus costing \$18,000. To meet the specific operational requirement, 8 million dollars was spent on the larger capacity buses, whereas to do the same work, 8.5 to 9 million dollars was required if the smaller capacity buses were purchased.

Other factors mentioned by fleet operators requiring consideration in the selection of the proper equipment include: (a) use of lightweight materials or construction to permit greater payload, (b) accessibility for maintenance, (c) use of alternate materials where such will increase vehicle life and permit easier repairs, (d) adequate performance of the vehicle on the highway.

The subject of truck selection is far from a pure science, since it involves many intangibles. In addition, the engineering used in automotive vehicles is, at best, only a compromise in an effort to design the equipment to meet as many operating conditions as possible within the framework of a price structure. Therefore, a sound engineering approach to proper selection of equipment appears pertinent to the subject of reduced capital investment. Summarizing briefly the comments received from the various operators on this matter, we have:

- 1) Purchase the vehicle that will best meet your load and operational requirements.
- 2) Have available, when discussing specifications with the manufacturer's representative, factual data relevant to the load, terrain, operating conditions, etc.
- 3) Do not let the price tag be your only method of comparison.
- 4) Use mass production vehicles where they will fit into your program.
- 5) Insist on good cabs, driver comfort, and satisfactory vehicle handling.
- 6) Know the vehicle specifications so that you can intelligently discuss them with the vendor to your advantage, and thus obtain the best vehicle to suit your requirements.

(TURN TO PAGE 89, PLEASE)



HOW TO PREVENT *Costly Delays*

**Do the Obvious Thing:
Put On Servis Recorders**

When a truck manager installs a Servis Recorder on a truck, a number of things begin to happen:

- he gets on his desk every morning a little chart that shows all the truck did yesterday.
- he then knows how often the truck stood idle, and exactly how long—all day.
- he knows whether it was taken out at night without permission.
- the chart shows him whether *this* truck has too much work to do, compared with the others.
- knowing the truck's route, he can tell whether it did any speeding (making up lost time).
- if the truck gets in after hours, the chart shows him whether extra pay for overtime is justified.

—and the New Model shows on the chart if the Recorder was opened during the day—and when.

All this the SERVIS RECORDER does—and more. Write for our booklet—"Ten Ways of Getting More Work Out of Motor Trucks."

**THE SERVICE
RECORDER CO.**
1375 Euclid Ave. Cleveland 15, O.

All you need
is a Screw Driver
and 3 Screws!

The Servis Recorder
Shows Busy and Idle Time . . . All Day

RIGHT UP
IN THE CAB





"Suppose we'd better check . . . he's been under there for about two weeks."

Truck Investment Cut

Continued from Page 86

Efficiency of Operation

THE efficiency of an operation involves the teamwork of all concerned from top level management down. The survey of a number of operators indicates that a highly coordinated efficiency of all operations concerned is very important if reduced capital investment is to be achieved. Included in this category are the following items:

Maintenance—There is a general agreement among operators that a sound maintenance program rates high among the factors responsible for truck efficiency. There is available considerable data on vehicle maintenance so that further discussion of this item is not deemed necessary for this particular discussion. Before leaving it, I might mention that where vehicle maintenance is on a "hit and miss" schedule, the adoption of a minimum maintenance and lubrication program will at least result in some orderly control, together with a chance to look at those items concerned with the safe operation of the vehicle on the highway. Striking a reasonable balance in establishing preventive maintenance programs is essential for achieving the aim of keeping the trucks on the road instead of in the shop.

Some operators find a decentralization operation economical. Where this practice is followed, a fully equipped mobile maintenance truck is used to visit the decentralized fleet for the scheduled maintenance rather than running the delivery units to the centralized garage. This eliminates the unnecessary running time of a delivery unit, and the efforts of the driver are saved for delivery duties.

Scheduling—Good scheduling of equipment reduces the number of trucks seems to summarize in a few words the general thinking of the importance of this item. In the scheduling of the work to be accomplished daily by the vehicle, we cannot assume that since the vehicle has a tight schedule of perhaps 20 hours per day, we have accomplished our mission. A careful study might reveal that the same hauling can be done in less hours. For example, an analysis of a certain operation showed that by scheduling the equipment to leave the terminal at a time to permit the vehicle to miss heavy urban traffic congestion resulted in a saving of two hours on this particular assignment. This saving was made possible by missing the morning traffic jams, together with the fact, that, the unit was able to miss the equally heavy evening traffic on its return trip. This item then suggests the value of timing in planning the hauling schedule.

Timing, of course, is also very important in local deliveries, particularly in highly congested areas. The time lost in making such deliveries is not only reflected in non-productive vehicle use, but at a rate of 15 cents a minute, a twenty minute delay due to traffic conditions, or

the inability to find a place to park for unloading, constitutes a profit loss. Putting it another way, the cost of delay could very well equal the cost of the small commodity being delivered. This loss is borne by your vehicle operation. Scheduling the deliveries to be made during off-peak traffic loads, wherever possible, can save a lot of time, and wear and tear of the equipment and driver.

In scheduling of the equipment, the routes proposed have a direct bearing on your operation. In this connection, a longer circuitous route, where travel time between two points may be the same as the more direct route through congested streets, should be considered. This type

of planning will often reduce the vehicle exposure to traffic incidents and thereby, could result in a decrease in traffic accidents. You do not have to be reminded of the constantly increasing insurance rates so that a general reduction of highway vehicle accidents will be reflected in lower premiums. Operating equipment in highly congested areas also results in higher maintenance costs and poor gasoline mileage.

Some operators report having used the services of an industrial engineer to an advantage in having the movements connected with the various hauls, studied from the time the truck is loaded and leaves

(TURN TO NEXT PAGE, PLEASE)

This NEW BOOKLET WILL SAVE DOLLARS FOR SUNNEN EQUIPPED SHOPS...

SUNNEN SERVICE HINTS

It Pays to Get the Most Out of What You Have ... and Here's How

Because materials are short and costs are high... now, more than ever before, anything you can do to make supplies and equipment last longer is good news to your cash register.

This new booklet is full of ideas and suggestions on how to operate Sunnen equipment more efficiently, and make Sunnen supplies go farther. It can mean considerable savings in your shop.

Write for Your Copy of "SUNNEN SERVICE HINTS"

SUNNEN PRODUCTS COMPANY

7907 Manchester Avenue, St. Louis 17, Missouri
Canadian Plant: Chatham, Ontario

627

Truck Investment Cut

Continued from Page 89

the terminal point until the time it returns. As a result of this time study, full loads are being accomplished where only part loads were handled before. As a further result of the figures obtained by the engineer, a standard has been established permitting the operator to periodically measure the efficiency of the various units.

What are the various operators doing to increase their operating efficiency? In the oil industry, we find a definite trend along the following lines:

(a) Increase loading rates by high capacity pumps, and increase unloading rates by—(1) increase underground storage capacity, and, (2) by encouraging the consignee to modernize his location to permit faster discharge rates.

(b) Key stop deliveries permitting the unloading of the commodity in the absence of the consignee.

(c) Loading trucks during slack hours at the loading points.

(d) Use of devices such as: vent alarms, meters, degree day systems, etc., to increase efficiency of the truck unit.

It is interesting to observe that most of the factors given above have a counterpart

in the hauling of general commodities. This would certainly indicate that the efforts to increase efficiency are being diligently pursued by many various operations. Correspondingly, we have:

(a) Increase efficiency both at loading and unloading points by the use of fork lifts, drag lines, pallets, etc.

(b) Night deliveries using special room or enclosure to which the driver has access for unloading the commodity.

(c) Around the clock dispatching.

(d) Greater use of such labor saving devices as: power take-off operated tail gates and other auxiliaries.

(e) Good system of bill of lading and other documentation.

Leasing—Some operators take care of their peak requirements by leasing and/or other available hauling facilities. There is also some thinking along the lines of exploring the possibility of long term lease of automotive equipment somewhat similar to the present practice of food companies leasing stores previously erected by insurance companies or others. No capital investment is thus required in that the insurance company acquires the land, erects the building and leases to the operator.

Other Items—Worthy of consideration in certain operations is the outside storage of trucks. A truck is primarily built to work in the elements and to obtain the maximum efficiency from the vehicle it should be worked 24 hours a day. Thus, the time required for garaging would be for maintenance purposes only.

If a truck is stored on a vacant lot, the operator then has only to consider possibly the construction of a fence around the lot and the yearly taxes on the vacant lot. If, however, the truck is to be stored inside, then the operator is faced with the additional cost of (1) constructing storage facilities, (2) heating and maintenance of the storage facilities, (3) increased taxes on property, (4) increased fire hazard, all for the purpose of keeping the unit warm in the wintertime for easier starting.

More and more fleets are going to outside storage and are overcoming the cold weather storage problem by the use of the so-called immersion or block type heaters. At least one operator has his lot equipped for the storage of 200 vehicles. Several operators have reported satisfactory results obtained from this type of storage in sub-zero weather. In addition, other points of interest under this heading of efficiency of operation are:

(a) Use of radio communication, particularly in connection with local collection and delivery by trucks of goods for inter-city shipment.

(b) Pooling of equipment to take advantage of frequent peaks and valleys in the demand. Along this line, consideration might be given to greater use of interchange of trailers between connecting carriers so as to reduce the handling of the cargo to a minimum.

(c) Good understanding between sales and operation to permit maximum utility of the equipment. Consolidated small shipments with one large delivery.

(TURN TO PAGE 92, PLEASE)

"HOOF GOVERNORS

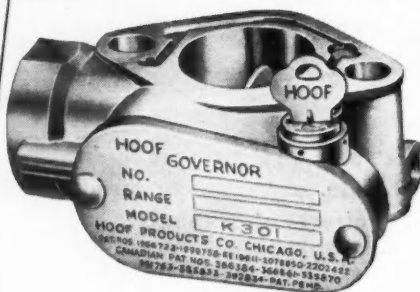
*cut both maintenance and
operating costs...
with no change in running
times!"*



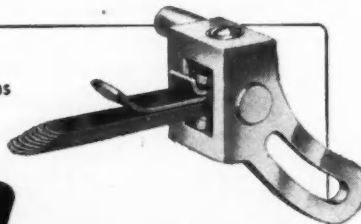
"Governed" speed doesn't necessarily mean "slow" speed. Hoof Governors simply insure that your vehicles are driven at the speed you select.

Whether this "most practical" speed is 30 mph or 60 mph, Hoof Governors provide round-the-clock protection: first, approved top speed cannot be exceeded, and second, excessive engine racing in intermediate gears is positively prevented.

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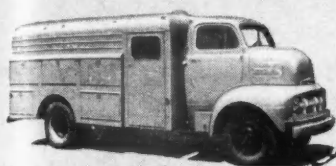


A Patented, exclusive Hoof feature, this Cantilever Spring means more accurate speed control, simplified construction and longer life!



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seal type*
GOVERNORS

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Chicago 38, Ill.



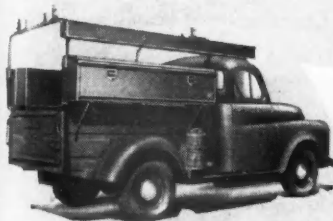
LINE CONSTRUCTION BODY (600C)

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Models available in working heights of 23' 6", 26' 6", 30' 6", and 32' 6" for all styles of bodies.



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This compact unit is widely used for service and light duty construction. Fold-over derrick can handle 40' poles.

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Available in a wide range of body styles to fit operating requirements in all phases of the utility industry. Models can be furnished for 1/2, 3/4, 1, and 1 1/2 ton chassis. Compartments can be equipped with shelves, bins, and accessories to suit individual needs.

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PUBLIC UTILITY BODIES AND EQUIPMENT

McCABE POWER EQUIPMENT CO., INC.
3508 North Broadway, Chicago, Illinois

Truck Investment Cut

Continued from Page 90

(d) Closely associated with item (c) is the thought advanced to replace the theory of salesmanship in deliveries by sticking to efficient transportation.

(e) The practice of spotting trailers at the receiving docks of shipment and receivers for long periods should be reviewed.

(f) Good coordination between pick-up and delivery, and over-the-road schedules.

The operators in considering the reduction of capital investment will certainly

explore all possible media and methods of transporting this commodity from one point to another. Under this category we cannot afford to overlook the possible savings to be realized by shipping the trailer by flat car. Included in such savings could be a reduction of maintenance costs, depreciation and insurance premiums. It could also avoid highway delays caused by ice, storms, floods, etc. It might be mentioned in this connection that there are now in this country several such operations, one of which is here in New York, on the New York, New Haven and Hartford Railroad. The shipment of trailers by rail car is now in the preliminary stage but it is a develop-

ment that appears destined in the not too distant future to remove some heavy equipment from the highways.

Education

THE handling that the automotive equipment receives on the highway and in the shop is of vital concern to the operator. Not only is the investment of the piece of equipment at stake, but to a larger degree, the handling of equipment will have a bearing on the number of pieces of equipment required, and thus, total capital investment. Driver abuse of the equipment is reflected in high mechanical failures and/or high accident rates both of which will keep the equipment in the shop rather than profitably engaged on the road. The fact that high repair and maintenance costs dig into the profit picture is of itself important; however, the situation in an acute state could necessitate additional equipment to meet your hauling requirements.

The other phase of your operation on which your personnel have direct control of your equipment is in the shop, either your own or outside. Poor workmanship in the shop not only delays the time for the unit to be back in service, but will result in repeated breakdowns again costing delays and money. Both the driver and the shop mechanic are closely related in respect to the ultimate efficiency of your vehicle operation.

Legislative Developments

THE next important phase of the automotive transportation problem to consider is the one dealing with laws and regulations as they affect the transportation industry. The legislative trend has grown to be a factor of major consideration, and it becomes necessary for the operator to keep posted on such developments. Many operators find it expedient to maintain contacts with many groups, organizations, governmental agencies, etc., so that they can keep informed and thus act in the best interest of their company and the transportation industry.

Closely associated with highway transportation problems are the continued technical developments which exert their influence and are a part of the over-all picture. Committees of the Society of Automotive Engineers are actively engaged in studying many phases of this problem, and the results of such deliberations will add much factual data so necessary, if the efficiency of highway transportation is to continue and be further improved.

It requires continual vigilance to be in the position to act and handle properly those items as they make their appearance. As fleet operators, therefore, your assignment today must consider the many items mentioned, which is a far cry from that of a few years ago when operation covered primarily the physical aspects of "running the fleet." Efforts towards all phases of operation mentioned are essential if your operating efficiency is to increase and, finally, that highway transportation be permitted to grow and expand.

END

Please Resume Reading Page 52

COMMERCIAL CAR JOURNAL, January, 1952

No. 1270-S THE **Anthes** LINE

Mirror rides completely in rubber. Glass can easily be replaced. Waterproof

Anthes patented strut, raises or lowers, swivels on ball and socket—fits all conditions.

Finest, clear mirror glass, sees everything. No shimmy—no blur. 4x8 inch size.

New, improved heavy steel bracket for hinge or body mount.

Write today for your copy of the new Anthes catalog. Detailed descriptions of mirrors and all other Anthes Highway Safety Equipment.

ANTHES FORCE OILER CO. FORT MADISON, IOWA

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FLARE TUBES

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EXTINQUISHER

TRUCK PLATE

MIRRORS

Anthes THE FIRST LINE OF SAFETY

... and proud to serve the safest drivers on the road!

"We welcome Snap-on's*

Snap-on Service

is brought into shops all
over America by men like these—
trained, friendly, helpful.

MOBILE TOOL STORE into our shops"

"This tool service, right at the bench
enables our mechanics to buy and main-
tain an adequately stocked tool chest
and saves many man-hours previously
lost in 'shopping for tools,' says—



GEORGE C. ARMON,
Asst. Service Manager,
Capitol Cadillac-Oldsmobile Co., Washington, D. C.

Choosing your Snap-on tools right on the job, at
the bench, has for thirty years been recognized as
"the time-saving way to buy time-saving tools." The
Snap-on Man brings you genuine *automotive service
tools*... many of them specially designed to speed up
the meanest jobs that come your way... and what a
whale of a difference they can make in a man's out-
put and earnings! You should have Snap-on's big
104-page catalog "T" right at hand. If you don't
have a copy write for it today!



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Charlotte Branch



Jim Wolfensberger
Philadelphia Branch



Joe A. Actis
Seattle Branch



Paul McGraw
Denver Branch



J. A. Thomas
Atlanta Branch

Super Service Motor Freight Co. has announced the opening of its new general offices and Nashville terminal at Fessler Lane near Lebanon Pike, Nashville, Tenn.

Interstate Motor Freight System, St. Louis, Mo., presented a certificate and ring to Fred Bolton of Detroit in recognition of 27 consecutive years' driving for International without a chargeable accident. Awards were also presented to 15 drivers for varying years of safe operation in the St. Louis area and six drivers in the Indianapolis area.

Pacific Intermountain Express reports personnel changes in their general shops in Denver, Colo. John W. Riesing has been appointed fleet maintenance superintendent; W. J. Breyer, appointed his assistant; Levi J. Reynolds, appointed general foreman; L. C. Colburn to overhaul foreman, and Jerry Sandlin to service foreman.

National Van Lines, Inc., Chicago, has a new general sales manager in the person of Fred Willson, a leading figure in the moving industry. Mr. Willson was with National as sales manager from 1941 to 1944.

Interstate Motor Freight System has announced the opening of a new freight terminal at Pontiac, Mich., to replace the one which burned last fall. The new terminal, located on a three-acre site at 117 Brush Street, will give Interstate a much more advantageous location, the announcement stated.

FLEET NOTES



Robert R. Walker, Inc., South Bend, Ind., has won first place in the 1950-51 national fleet safety contest sponsored by the National Safety Council. They transport new Studebaker passenger cars.

Coy Flippin Transfer Co., Pilot Mountain, N. C., has purchased the rights of Interstate Motor Lines of High Point, N. C.

Associated Transport, Inc., New York, has received the coveted *Financial World*, "Oscar of Industry" award for the best annual report in the trucking industry. Greyhound Corp. and Interstate Motor Freight System of Grand Rapids, Mich., were in second and third place respectively.

Lambert Transfer Co., Baltimore, Md., has been purchased by Lloyd E. and Clifford T. Phillips. The new owners have stated that they plan to open another terminal in Harrisonburg, Va.

George F. Alger Co. has increased their safety staff by the addition of two experienced drivers who were promoted to field supervisory jobs. They are Robert Smith, the 1951 Illinois roadeo champion in the straight-truck class, and John McClory, a driver with a long safety record. The head of Alger's safety department is W. Earl Givens, Jr.

Spector Motor Service has opened a modern truck terminal in Milwaukee, Wis., at 1001 W. Layton Rd. State and local officials had a look-see at an open house celebration in November.

Knowles Vans Inc., Omaha, Neb., is spending \$100,000 on a new terminal that will include features like a vehicle inspection section, storage space for pallet loads, and ample dock space with a generous parking lot.

George F. Alger Co., Detroit, has announced appointment of J. H. Wharton as general agent in their sales department. A. C. Scott, president of Alger, has been elected a vice president of the American Trucking Associations.

Scherer Freight Lines, Decatur, Ill., has appointed Mr. Marion B. McClellan as district manager in their Central Illinois area.



AM

TRAILER



* ALUMINUM-MAGNESIUM

IT IS DURABLE IT IS LIGHT IT CARRIES NO
GREAT PREMIUM PRICE IT INCREASES THE PAY LOAD

KENTUCKY MANUFACTURING COMPANY R. C. Tway Company, Incorporated, Owner
2601 SOUTH THIRD STREET, LOUISVILLE 8, KENTUCKY

6 of 8 National Champs pull Fruehaufs to Win in '51

ALL TRAILER EVENTS AT '51 NATIONAL A. T. A. ROADEO!

1ST IN SINGLE AXLE CLASS!

ALBERT D. POMAHATCH of Merchants Motor Freight, Inc.,— St. Paul, Minn.— took top honors in the Tractor, Single Axle Semi-Trailer Class with a winning score of 358 points at the '51 National A. T. A. Roadeo.

Mr. Pomahatch is a veteran driver of twenty-two years, with an amazing safety record 1,750,000 miles without an accident. He preferred to pull an industry-famous Fruehauf Single Axle Trailer, with Multi-Rate Spring Suspension, to win because he knows — from long experience — that when the stakes are high, Fruehauf Trailers complete the winning team.



Year after year--at the Roadeo and on the road--the first choice of champions is Fruehauf. FRUEHAUFS ARE ENGINEERED TO WIN!

FRUEHAUF SALUTES . . . not only the finalists at the National A. T. A. Roadeo, but also pays tribute to the splendid driving skill and outstanding safety records represented by the nation's truck drivers who participated in the many State Roadeos across the country.

Performance records of truck drivers,

as a group, are proof that we owe much to all the men behind the wheel. Their safety record, while forging the nation's trucking industry as the most vital link in America's essential transportation picture, is outstanding.

Yes, Fruehauf salutes *all* Roadeo participants — and *all* truck drivers. *They're a great group of citizens!*

WORLD'S LARGEST BUILDERS OF TRUCK-TRAILERS

FRUEHAUF TRAILER COMPANY • DETROIT 32, MICHIGAN



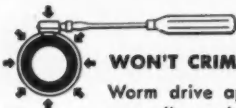
**"This one clamp
saves a dozen trips
to the stockroom"**



"Aero-Seal"

**WORM DRIVE
HOSE CLAMPS**
with Stainless Steel bands.

No need for a trip to the stockroom for a clamp to tighten a leaky hose. Overhaul after overhaul, season after season, the mechanic simply replaces the worn hose and re-uses the same Aero-Seal Hose Clamp.



WON'T CRIMP—CAN'T LEAK

Worm drive applies even pressure all round the hose. Smooth saddle prevents cutting. No crimping—Aero-Seal can be replaced in any position. Three threads of worm always engage deep into slots of stainless steel band... hold hose tight over a million miles of roads!

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A man can install an Aero-Seal any place he can reach with thumb and finger. Integral construction—no parts to lose. Self-feeding when worm engages band. Screw-driver slot or thumb grip screw styles. Tighten with a twist of the wrist.

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BREEZE CORPORATIONS, INC.
41 South Sixth St., Newark, N. J.

FACTORY FLASHES



International Harvester Co. opened a new motor truck branch at 1600 East Tuscarawas Street in Canton, Ohio, in November. Open house festivities marked initiation of the new branch, whose facilities are intended to strengthen the company's motor truck sales and service operation in the Canton area.

Union Asbestos & Rubber Co., Chicago, has acquired the business of Coldmobile Co., Detroit, makers of highway transport mechanical refrigeration units. The Coldmobile line will be added to the present line of Dromongold & Glenn division of Union Asbestos, with Coldmobile's former president, Henry O. Kirkpatrick as chief engineer of the D & G outfit.

Fuller Mfg. Co., Kalamazoo, Mich., recently completed a 56,000 sq ft manufacturing building to be devoted exclusively to "small, miscellaneous transmission parts." The new site is located about a mile from the main building in Kalamazoo.

Morrison Steel Products, Inc., Buffalo, N. Y., has an ambitious expansion program in process which they are rushing to complete. The firm is adding 120,000 sq ft of manufacturing space. They make steel stamping products primarily in contract work for the trucking field. The company also has a backlog of more than \$2 million in defense orders.

Chicago, Ill.—A letter of commendation has been received by the Dennis Truck Lines, Inc., of this city which praises the efforts of two of their drivers, Carl Smith and Robert S. Ashlev, for assistance rendered Captain Clifford D. Rhodes of Camp Atterbury, Ind. The men established traffic control and gave aid at the scene of an accident in the Indianapolis area in which passengers of Capt. Rhodes' car were painfully injured.

Akron, Ohio—Dixie-Ohio Express has announced that they will occupy new terminal facilities in Mansfield, Ohio and Birmingham, Ala.

Dallas, Tex.—Jones Truck Lines has purchased the property of the Keystone Freight Lines at 2020 Elkins St., where it will operate until terminal facilities are constructed some time in the future.

Marmon-Herrington Co., Inc., Indianapolis, Ind., has been awarded an Air Force contract said to be in excess of \$10 million, for production of special crash trucks to be used for fire-fighting purposes at various airports.

Budd Wheel Distributors provide the same service described in this advertisement



AKRON—Motor Rim Manufacturers Co.
ALBANY—Wheels, Incorporated
ALBUQUERQUE—Wheels & Brakes, Inc.
ATLANTA—Harris Automotive Service, Inc.
BALTIMORE—R. W. Norris & Sons, Inc.
BIRMINGHAM—Wheel, Rim & Parts Co.
BOSTON—New England Wheel & Rim Co.
BUFFALO—Frey, the Wheelman, Inc.
CHARLOTTE—Carolina Rim & Wheel Co.
CHICAGO—Stone Wheel, Inc.
CINCINNATI—Rim & Wheel Service, Inc.
CLEVELAND—Motor Rim Manufacturers Co.
COLUMBUS—Hayes Wheel & Spring Service
DALLAS—Southwest Wheel, Inc.
DAVENPORT—Stone Wheel, Inc.
DAYTON—Rim & Wheel Service, Inc.
DENVER—Quinn & McGill Motor Supply Co.
DES MOINES—Des Moines Wheel & Rim Co.
DETROIT—H. & H. Wheel Service, Inc.
EVANSVILLE—Auto Wheel & Rim Service Co., Inc.
FARGO—Wheel Service Company
FORT WAYNE—Wheel & Rim Sales Co.
GRAND RAPIDS—Rim & Wheel Service Co.
HARRISBURG—Standard Rim & Wheel Co.
HARTFORD—Connecticut Wheel & Rim Co.
HOUSTON—Southwest Wheel & Equipment
INDIANAPOLIS—Indiana Wheel & Rim Co.
JACKSONVILLE—Southeast Wheel & Rim Co.
KANSAS CITY—Borbein, Young & Co.
KNOXVILLE—Harris Automotive Service, Inc.
LOS ANGELES—Wheel Industries, Inc.
LOUISVILLE—Auto Wheel & Rim Service
MEMPHIS—Beller Wheel, Brake & Supply Co.
MILWAUKEE—Stone Manufacturing Co.
MOLINE—Mutual Wheel Co.
NASHVILLE—Beller Wheel, Brake & Supply Co.
NEWARK—Automotive Safety Inc.
NEW HAVEN—Connecticut Wheel & Rim Co.
NEW ORLEANS—Southern Wheel & Rim Co.
NEW YORK—Wheels, Incorporated
OKLAHOMA CITY—Southwest Wheel, Inc.
OMAHA—Morgan Wheel & Equipment Co., Inc.
PEORIA—Peoria Wheel & Rim Co.
PHILADELPHIA—Thomas Wheel & Rim Company
PITTSBURGH—Wheel & Rim Sales Co.
PORTLAND—Six Robblees', Inc.
PROVIDENCE—New England Wheel & Rim Company
RALEIGH—Carolina Rim & Wheel Co.
RICHMOND—Dixie Wheel Co., Inc.
ROCHESTER—Frey, the Wheelman, Inc.
SALT LAKE CITY—Henderson Rim & Wheel Service
SAN ANTONIO—Southwest Wheel & Equipment
SAN FRANCISCO—Wheel Industries, Inc.
SEATTLE—Six Robblees', Inc.
SOUTH BEND—Wire & Disc Wheel Sales & Service
SPOKANE—Bearing & Rim Supply Co.
SPRINGFIELD, ILL.—Illinois Wheel & Brake Co.
SPRINGFIELD, MO.—Borbein, Young & Co.
ST. LOUIS—Borbein, Young & Co.
ST. PAUL—Wheel Service Co.
SYRACUSE—Colbourn Wheel & Rim Service, Inc.
TACOMA—Six Robblees', Inc.
TOLEDO—Wheel & Rim Sales Co.
WICHITA—Borbein, Young & Co.
WINSTON-SALEM—United-Automotive Service

EXPORT

CLEVELAND—C. O. Brandes, Inc.

CANADA

CALGARY—Fisk Tire Service Ltd.
EDMONTON—Alberta Wheel Distributors, Ltd.
MONTREAL—Auto Wheels & Supplies, Ltd.
TORONTO—Wheel & Rim Co. of Canada, Ltd.
VANCOUVER—Wheels & Equipment, Ltd.
WINNIPEG—Ft. Garry Tire Service Ltd.

For Safe, "On Time," Deliveries



Motor Convoy, Inc., operating 100 units, delivers new automobiles throughout the Southeast.

Wheel breakage and blowouts were endangering cargo as well as other users of the highways, and delaying deliveries past dealers' closing hours, necessitating overnight layovers. And road calls, as you and all of us know, are expensive.

Guy Rutland, Jr., of Motor Convoy, is also president of the Georgia Motor Trucking Association, and naturally is a promoter of highway safety. So he called in Harris Automotive Service, Inc., Budd wheel distributors in Atlanta, to see what could be done to improve matters.

The Harris people changed over the tractors and trailers, the whole shooting match, from 20 x 6.0 and 20 x 5.0 flat base wheels, to 20 x 6.5 Budd advanced wheels with heavy duty discs and full wide base double bead seat rims.

That not only cleared the troubles up in a hurry, but also extended tire life about 25%.

Your Budd wheel distributor (the one in your vicinity is listed in the column at the left) is qualified to provide you with the same expert service. And with Budd wheels, the only complete line with advanced rims, he's got the wheels to do it. The Budd Company, Detroit 14.



GENUINE

Budd

COLD TAPERED DISC

WHEEL

*Specify Budd Wheels and
Standardize on them*



he's free of concern ... his trucks won't burn

Going home ... relaxing after a day of high-gear activity is no trouble for this trucker! His mind's at ease about fire ... thanks to the safety given his trucks, cargoes, terminals and garages by efficient, quick-acting C-O-TWO Fire Protection Equipment.

You too, can have this same peace of mind ... this same positive protection from costly fires by installing complete, approved C-O-TWO Fire Protection Equipment. For instance, with a C-O-TWO Automatic Fire Protection System in a trailer, you have a 24 hour a day automatic fire watchman ... whether under way or parked. Heat detectors on the ceiling quickly actuate the system ... then clean, dry, non-damaging, non-conducting carbon dioxide gas is flooded into every nook and corner, extinguishing the fire in

seconds before it spreads and causes serious damage. After use, the carbon dioxide disappears without a trace ... no water damage, no after fire mess.

C-O-TWO Portable Fire Extinguishers ... either carbon dioxide type or dry chemical type ... render fast, positive action for extinguishing fire during the incipient stage. C-O-TWO Portable Fire Extinguishers are designed to take abuse ... rugged construction, no extra gadgets protruding or complicated operating parts ... built to rigid specifications to assure you of lasting, efficient fire protection.

So, let an expert C-O-TWO Fire Protection Engineer help you in planning complete and up-to-date fire protection facilities now. Write us today for complete free information ... our experience is at your disposal.



C-O-TWO FIRE EQUIPMENT COMPANY

NEWARK 1 • NEW JERSEY

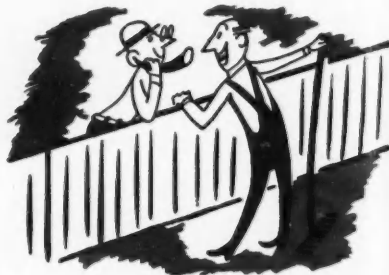
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Squeeze-Grip Carbon Dioxide Type Fire Extinguishers • Dry Chemical Type Fire Extinguishers
Built-In High Pressure and Low Pressure Carbon Dioxide Type Fire Extinguishing Systems
Built-In Smoke and Heat Fire Detecting Systems

LOCAL NEWS



New York, N. Y.—The Traffic Club of Brooklyn borough has reported the election of Vincent Chouherie of Waring Central Co. as their president; Benjamin J. Guarino of Bush Terminal Railroad Co. as vice president, Charles R. Ebert of Associated Transport as secretary, Paul K. Cleveland of Trans-World Airlines as treasurer, and Joseph Hiller of Sitroux, Inc., as the assistant secretary.

New York, N. Y.—Frank E. Asher has been appointed Adjunct Assistant Professor of Transportation at NYU. He is also vice president of Schupper Motor Lines, Inc.

St. Paul, Minn.—New \$250,000 headquarters were recently opened by Rihm Motor Co., midwest distributors for Kenworth Motor Truck Corp. of Seattle. The plant has 43,000 sq ft of shops, offices and showrooms on two floors, and an adjoining used truck sales lot. The address is 2108 University, at the corner of Cleveland, midway between St. Paul and Minneapolis.

Houston, Texas — Gustin-Bacon Mfg. Co. (misc. equipment), has a new sales office and warehouse at 5531 Armour Drive.

El Paso, Texas—Autocar Co. has announced a new truck dealership in Rugel Motors, Inc., a long-established passenger car agency.

Baltimore, Md.—Service Inc., has a 5-station telephone system between their home office in Baltimore and branch terminals in Charleston and Huntington, W. Va. Another Service advance is the addition of a number of new over-the-road tandem axle trailers, both open and van type.

Des Moines, Iowa—John Ruan, president of Ruan Transport Corp. has been elected chairman of a 20-member committee to head a safety campaign in the state of Iowa. The campaign is sponsored by the Iowa Safety Congress in cooperation with the Iowa Department of Public Safety and other safety organizations.

Reading, Pa.—Reorganization of the Bingaman Motor Express Co., Inc., has been announced with the purchase of the company by Cohu Corp., a wholly-owned affiliate of Cohu & Co., New York.

Trenton, N. J.—Speed limit on the New Jersey Turnpike will be set at 60 mph for trucks.

Paterson, N. J.—John E. O'Brien, general agent of the Preston Trucking Co., is the new president of the Traffic Club of North Jersey, elected at a recent meeting of the club.

IN SALT LAKE CITY the scale tells the tale . . .

Brown trailers weigh up to 1720 Lbs. Less...



Actual Scale Weights of Comparable Trailers

	BROWN	TRAILER A	TRAILER B
TOTALS	10,140	11,860	11,390
		10,140	10,140
WEIGHT SAVING on Brown Trailer		1,720	1,250

IN SALT LAKE CITY . . . a certified weight comparison on the same scales between a Brown trailer and two other comparable trailers showed that the BROWN TRAILER was 1720 lbs. lighter than Trailer A and 1250 lbs. lighter than Trailer B. The weight certificates are on file to prove our claim that the Brown trailer is lighter than comparable trailers.

In any part of the nation, on any scale, you can make this test today and it will convince you that BROWN TRAILERS are hundreds of lbs. lighter than comparable trailers.

Your own operating figures will show you how Brown's lightweight trailers will build your profits. Hundreds of lbs. more payload — per trailer —

per trip adds up to increased profits. To keep profits up when overheads rise — get your trailer weights down — BUY BROWN for:

✓ Lighter Weight

✓ Bigger Payloads

✓ Increased Profits

Toledo, Ohio Spokane, Wash.
Distributors in principal cities

Winter Maintenance North of the Border

Continued from Page 58

When this job is out of the way, we get engine underpans ready for installation. In this climate, enclosures for engines (Fig. 1) located midship are a necessity for maintaining engine efficiency, conserving heat, and keeping the engine clean. They are installed as soon as the temperature drops and snow is expected, and removed about the beginning of summer; spring rains

and thaws can be as messy as snow and slush.

We agree that underpans are a nuisance, and require a lot of labor and storage, but the extra trouble is worth the results. We even use underpans on our rear engine jobs.

Another similar development is in the form of a snowshield that fits in front of the radiator on the underfloor

engines. It prevents snow from building up and causing overheating, but permits air to circulate properly. One of these is shown in Figs. 2, 3 and 4. Made of aluminum, they are our own design and construction.

Shutterstats, shutters and connections are tested for operation, and repaired and replaced as necessary.

Of late, we've been experimenting with replacing the shutterstat on the front of the radiator by a variable pitch fan to get a more constant engine temperature on diesels. Previously, freezing snow or moisture had the effect of freezing the exposed shutter either open or closed.

The experiment was based on the assumption that the variable pitch fan always is kept warm, and there is no freezing of the blades. This has been proved in practice. Because they are extremely satisfactory, they will be standard equipment on next year's coaches.

Anti-Freeze Study Cuts Cost

OUR next step is to have the cooling system drained, backflushed and filled with a mixture of ethylene glycol and water. We now use it in a proportion of 25 per cent permanent base anti-freeze to 75 per cent water.

Provincial Transport previously used a 50-50 mixture. But last year we called in a research firm and its analyses saved us at least \$5,000 during the course of last winter.

The tests made by the research chemists found that the 25-75 mixture was effective till 10 deg below. But, besides that, it was noted that it took an additional four hours for a slush to form under colder conditions. We found, then, that this allowed us a safety margin of four hours during which time it's possible to get to any trouble-ridden coach. And, therefore, the 25-75 mix fitted most of our needs.

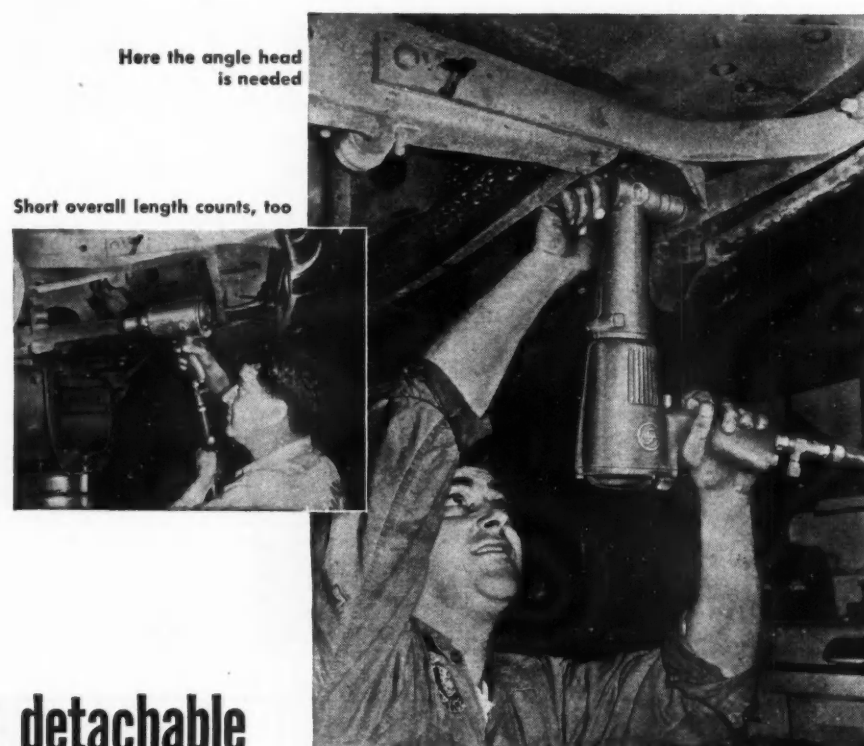
Winter Lubricants

THE engine, transmission, differential and steering box oils are drained and replaced with winter-grade oils. We drain every 5000 miles; oil filter cartridges also are changed at this time.

In an effort to combat cold sludge, oil analysis of a cross section of our fleet are made at frequent intervals by Faber Laboratories. Whenever the analysis indicates a sludge condition, the oil is drained and plunged immediately.

For transmissions we use an SAE 30 heavy-duty oil. For differentials and steering boxes, we use universal gear lubricant EP 80. For wheel bearing we use Marfak No. 2.

(TURN TO PAGE 104, PLEASE)



detachable angle heads — Controllable Power

The only *complete* line of Air Impact Wrenches with controllable power and detachable angle heads: CP-730, capacity to 1/2" bolt size; CP-750, to 5/8" bolt size; CP-770, to 1" bolt size. Their controllable power makes it easy to run nuts to any predetermined tightness.

For heavier jobs, the CP-365, capacity to 1 1/4" bolt size, is available in straight and angle head models.

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full information



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AUTOMOTIVE SERVICE EQUIPMENT • FENDER IRONS • ELECTRIC TOOLS
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"The Ease of Repairing any Damage to these Truck Bodies is Really Appreciated"

says **J. Lubischer,**
MECHANICAL SUPERVISOR
TOBIN PACKING CO., INC.
ROCHESTER, N. Y.



Tobin Packing Co., Inc. knows the important advertising value of a good looking fleet—and J. Lubischer, mechanical supervisor of the company, knows how LS construction simplifies body maintenance . . . makes it easy and inexpensive to keep units in tip-top condition at all times.

In commenting on the twenty-seven LS units now in the Tobin Packing fleet, Mr. Lubischer says:

"We have fifteen trucks here in Rochester fitted with LS bodies which are used for city, country and peddler delivery service. The balance of the twenty-seven are at our Albany and Fort Dodge plants. We are more than pleased with these bodies for all types of service in

the handling of our meat and food products.

"We have received a great many compliments about the looks of our Lindsay Structure units. The ease of repairing any damage to these truck bodies is really appreciated, since we constantly endeavor to maintain a good looking fleet for advertising purposes."

Here are other "bonus" advantages you get with the LS patented method of construction—light weight, strength, safety and long life. Ask your nearby Authorized LS Body Manufacturer today for information on a handsome Lindsay Structure body built to your individual needs. If you do not have his name and address, write



LINDSAY

Lindsay Structure, Inc.
5000 West Dempster St., Skokie, Illinois

LS STRUCTURE

U. S. Patents 2017629, 2263510, 2263511
U. S. and Foreign Patents and Patents Pending

Part of a fleet of twenty-seven Refrigerator Bodies built of Lindsay Structure by Watkins Body Corp., Buffalo, N. Y. for Tobin Packing Co., Rochester, N. Y.



Winter Maintenance

Continued from Page 102

Storm Sash and Defrosters

IN SOME cases, storm sashes are fitted, and all drivers' side windows fitted up with Perspex. In addition, each driver has two small windshield fans—one on the dash, the other to the left, just behind the driver—to assist the defroster in its window-cleaning function.

Ideally, all the coaches should be equipped with storm sashes, but so far we haven't found a way to offset the prohibitive cost. On some coaches, we've experimented with a locally-made frost shield. But when we stuck it on the inside, the passengers usually picked it off. And, on the outside, it got damaged during washing.

Anhydrous alcohol is added to all fuel tanks (about 4 oz. to a 75-gal. tank) to absorb water content due to condensation, and on every inspection tanks are tapped for this water content. In other words, the anhydrous alcohol

has the effect of collecting all the water in the gasoline and dropping it to the bottom where it can be drained off. Otherwise, the water separating from the gas freezes, and we have frozen fuel lines.

Rigid checks are kept on the air reservoir tanks and they are blown at every opportunity.

Another problem we've begun to combat is the freezing of the brake application valve. Because of the tank's position—fairly close to the engine—the heat radiated from the engine doesn't allow the air from the compressor to the reservoir to condense properly. So, on trouble-ridden coaches, we've tried applying a spit valve up forward, by the front axle, where it can receive a cold blast of air. Thus, any moisture in the air is condensed in the valve, and the spit valve discharges the condensation.

Heaters in Parking Lot

ONE of our biggest nightmares has centered around where to store the coaches in cold weather. All the American-made diesels have to get heated storage, and it's possible to accommodate about 40 towards the rear of the big William St. garage in Montreal. But the remainder of the area is required for running repairs to the 650 orange buses—Canadian Car Brills, GMC's, Twin Coaches, Flexibles, Reo's, etc.—that make up the Provincial Transport fleet.

The majority of the coaches are in heated storage in suburban areas—rented garages—near the point where they start out on their morning commuter runs. But that still leaves some 150 coaches without a home.

Fortunately, a few years back, we acquired a lot almost adjacent to the garage. We've developed it into an ideal parking lot for these buses. With the aid of the Tropic-Aire-Vapor Parking Lot Heater, we can now keep more than half of them warm without recourse to idling.

We had heard of Greyhound, in Chicago, experimenting with a parking lot heater. In 1949, we decided to give one a fair trial. With some modification of our own, we found it worked well. In 1950, we purchased eight additional units. Each unit looks after 10 coaches, as shown in Fig. 5.

Roughly, here's how it works: A heat exchange unit pumps in the hot liquid (water and ethylene glycol in the 75-25 mix, although first instructions intimated anti-freeze wasn't necessary) from the heater through rubber flexible tubes via the water manifold of the engine. It fits onto the coach inlet and outlet and a flapper valve is used to prevent backflow of the liquid.

(TURN TO PAGE 107, PLEASE)

Smaller 'Packages'... Same High Purity LINDE Oxygen and PREST-O-LITE Acetylene

Trade-Mark

Trade-Mark



now in
HANDIER
cylinders for

- Garages
- Small manufacturing plants
- Sheet metal works
- Electrical repair shops
- Heating, plumbing, and air-conditioning contractors

	Style	Capacity cu. ft.	Height in.	Diam. in.	Weight	
					Full lb.	Empty lb.
Oxygen	Q*	80	35	7 1/8	67	60
Acetylene	WQ	60	24 3/4	7 3/4	55	51

*In some areas, Style XL, 70 cu. ft.

ORDER FROM YOUR

Linde
Trade-Mark

DISTRIBUTOR

"Linde" and "Prest-O-Lite" are trade-marks of Union Carbide and Carbon Corporation.

Everyone who works with metals should have an oxy-acetylene welding and cutting outfit. A jobber near you can supply your needs promptly. Write us for his name and address. Linde Air Products Company, a Division of Union Carbide and Carbon Corporation, 30 East 42nd Street, New York 17, New York.

New Studebaker Plant

The eastern assemble plant of the Studebaker Corp. is located at the intersection of U. S. highway 1 and the Pennsylvania Railroad's main line near New Brunswick, N. J. It was constructed as an automobile plant but it will manufacture component parts for jet engines. Following completion of the jet-part contract, the plant will be retooled and used as an assembly point



Winter Maintenance

Continued from Page 104

(Any new coaches that we buy now come complete with the required fittings.) The heater has automatic controls and shuts on and off with rises and drops in temperature.

The experiment has proved successful and considerably more economical than the alternative: Idling the coaches. Idling utilizes 3 gal. of gas per hour, which works out (with other incidental costs) to about \$10 an hour for 10 coaches. This is four times the cost of the Tropic-Aire method: One unit uses 1½ gal of fuel per unit per hour which, along with attendant's wages, parts replacement, etc., amounts to about \$2.50 an hour for 10 coaches.

Not All Problems Solved

STILL, there are a good many winter snags that still baffle us here at Provincial Transport in Montreal. For example, what to do about the constant sleet and slush remains a puzzler? Ice thaws during the daytime and freezes at night, then a driver will find his steering wheel just wont budge. What can you do, besides steam it or knock the ice off? Crude, yes, but we fondly hope someone would suggest a more expedient method.

And when should you start pouring in your anti-freeze? You might as well ask who's going to win in the second at Hialeah. It's the same kind of a gamble. Naturally, we delay the procedure as long as possible and, usually, wait until the nights get down to freezing.

Provincial Transport also owns two large government-type Sicard made-in-Montreal snowblowers. One stands by to augment government services in case a bus gets snowbound. The other is used regularly on a route in the Laurentian mountains, which our company has the responsibility of clearing.

That saying about the "ounce of prevention" is taken pretty seriously at Provincial Transport. We cannot afford the risk of the "pound of cure."

END

Please Resume Reading Page 59

COMMERCIAL CAR JOURNAL, January, 1952

SAVE YOUR TRUCKS!
SAVE TIME ...
SAVE MONEY with

HYPRESSURE
Jenny
STEAM CLEANER and
STEAM THORO-PURGE

The Only Combination
Steam Cleaner and
Cooling System Flusher
in the World!

As a steam cleaner, this two-in-one unit removes muck, grease, and dirt from vehicles ten times faster than by hand-cleaning methods; cleans so thoroughly that worn or damaged parts are exposed for replacement before breakdowns occur; removes the 400 pounds of dead-weight dirt accumulated by the average truck or bus; prevents grit and dirt from being forced into vital running parts with each lubrication; and by cleaning before repairs, saves up to 40% of your mechanics' valuable time usually spent fighting grease and dirt.

As a cooling system cleaner the Hypressure Jenny Combination keeps your vehicles operating at top efficiency. It reverse flushes the entire cooling system—radiator, engine block, and heater—and its exclusive four-way action of heat, chemical, safe but sudden temperature changes, and strong blast, gives the most thorough job known to modern science.

Free booklet, "1001 Ways to Extra Profits" shows how Hypressure Jenny can cut your fleet maintenance costs. Write for your copy today.

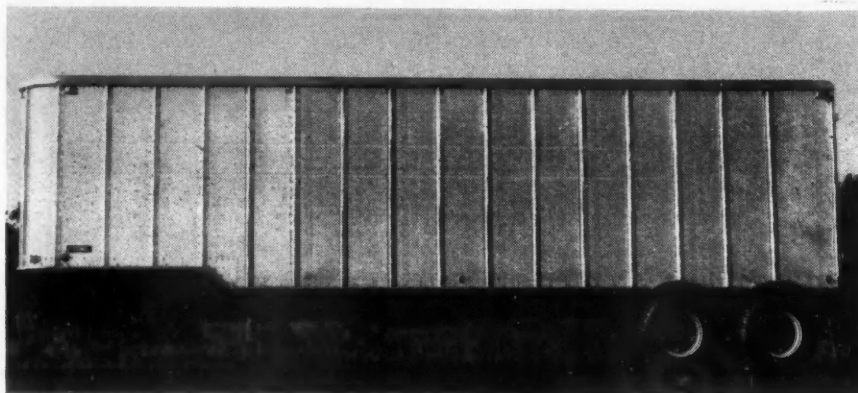
Distributors in all parts of the world. For local representative see Classified Telephone Directory.

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HOMESTEAD VALVE MANUFACTURING COMPANY

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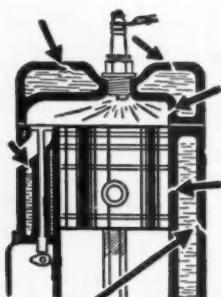


Brown Drop Frame Tandem Trailer

Developed by Brown Equipment & Mfg. Co., this 35-ft drop frame tandem trailer brings something new to the heavy-duty trailer field, with design features that add up to weight savings, increased capacity, ease of maintenance. Of monocoque construction this new model features an aluminum front understructure with six-inch tandem channels which reduce weight yet do not sacrifice strength and durability. Weight is also saved in the landing gear mounting assembly and bumper beams. Alclad sheets used in the body covering are free from heat treating strains and are easily cleaned. This rolled-on pure aluminum is resistive to atmospheric corrosion. Simplified body construction requires little maintenance, permits quick repairs when required.

LUSCO PLASTIC SEAL

The AMAZING CHEMICAL containing SEALIUM
(an exclusive product of LUSCO, Inc.)



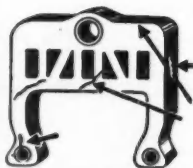
Repairs all kinds of cracks in motor heads and blocks including **CRACKS DIRECTLY INTO THE COMBUSTION CHAMBER**
(available in 'HEAVY DUTY' \$3.00 per pint list)

Repairs radiator leaks just as effectively or more so and just as permanently as a solder job. (available in 8-oz. cans \$1.00 list)

Works perfectly in water, alcohol and glycol. Is an excellent cleaner as well as a phenomenal sealer.



Makes possible amazing leak repairs in high pressure industrial boilers as well as low pressure steam heating boilers. (available in one gal. containers 'Heavy Duty' or special Heavy Duty)



LUSCO Seal-Wel CUBES (18 years in the market)
The World's best low priced radiator seal at 30¢ per CUBE list. May be sold with "GUARANTEED 90 DAY SERVICE." The conditioner and leak-proofing material that should be included with the liquid in every motor circulating system. Makes a motor run better. Insures anti-freeze installations

The LAZY MAN'S POLISH

LUSCO-vize
The World's best standard Polish for AUTOS — FURNITURE — WINDOWS (and all smooth finishes) "CLEANS TO THE ORIGINAL FINISH"

SIL-vize
The SUPER POLISH containing 6% SILICONE (water-emulsified) Cleans and 'Siliconizes' car finishes for one year lasting qualities

These are our claims for The LAZY MAN'S POLISH, either LUSCO-vize or SIL-vize. It is the fastest and easiest product to use and gives super results. It may be applied in brilliant sunlight, over wet surfaces, over the entire surface before wiping off, does not stick, streak, or fingermark. Works perfectly on Duco, Paint, Enamel, Synthetics, Varnish and Chrome.

FILL IN COUPON BELOW



LUSCO, Inc., 5915 Bonna Ave., Cleveland 3, Ohio
Enclosed is my letter head (or bill head). Please tell me how I can secure three cans FREE for trial. I am interested in:
☐ LUSCO PLASTIC SEAL for
☐ The LAZY MAN'S POLISH
☐ Please RUSH me C.O.D. Parcel Post prepaid three boxes LUSCO Seal-Wel CUBES\$6.48
Name
Position (please print)

Detroit Dispatch

Continued from Page 37

Quality, Biggest Fuel Problem

The outlook for motor truck fuels this year is a bit clouded. So far as gasoline is concerned, the big question is quality and not quantity. Up to the end of last year anti-knock quality had suffered very little, on the order of one or two points at most. However, lead is still very tight and if there is no improvement, quality of fuel is bound to suffer to some degree. Products other than civilian motor fuel have higher priority with NPA, and even if the total lead allotment for tetra-ethyl lead is not cut, it will have to be spread over a greater number of gallons because of increasing usage. The oil industry hopes, however, to hold fuels at the maximum highest levels consistent with the supply of lead.

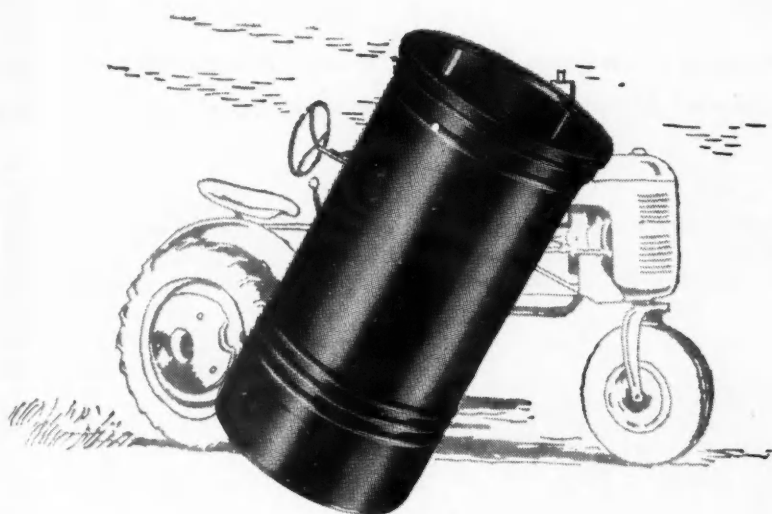
The outlook for diesel fuel is much better, since no lead is involved. In addition, development of amyl nitrate additives to increase quality may come along this year, augmenting the supply by use of cracked distillates, and making possible more uniform fuels of higher cetane number, which also have the advantage of not gumming or waxing as much as straight-run fuels.

END

Please Resume Reading Page 41

Stewed?

HANDSOME HERBIE, OUR NIGHT TRICK DISPATCHER, SAYS THAT ANY LITTLE TOMATO WHO KNOWS HER ONIONS CAN GO OUT WITH AN OLD POTATO AND COME HOME WITH A COUPLE OF CARATS.



MODERN MASS PRODUCTION depends on a constant flow of component parts. Parts that once specified, can be forgotten. Dependability of supply, quality and exact tolerance must be taken for granted. That is how Thompson Products has earned its position as a leading source of precision parts for cars, buses, trucks, tractors, and industrial engines.

Thompson engineering and Thompson production skills have been sharpened by the production of jet engine, radar and other defense equipment parts of almost unbelievable complexity, made to the closest tolerances known to industry.

For engine performance you can take for granted: *count on* Thompson



All the techniques and skills gained are applied to other products, such as the cylinder sleeves illustrated, piston pins, valve seat inserts and U-Flex piston rings. This means that every Thompson product assures maximum performance and dependability.

If you need better engine products from a supplier you can depend on, write or phone Special Products Division, Thompson Products, Inc., 2196 Clarkwood, Cleveland 3, Ohio. You'll soon learn what leading manufacturers have known for 50 years—you can count on Thompson.

Thompson Products, Inc.

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**PISTON PINS • VALVE SEAT INSERTS • CYLINDER
SLEEVES • WATER PUMPS • U-FLEX PISTON RINGS • CAST
IRON PISTONS • VALVE RETAINER CAPS AND LOCKS**

Tri-State Bus Maintenance Men

Eastern association hears American Transit Association's President Swift and own president discuss standards of maintenance efficiency

ONE OF THE PRINCIPAL topics discussed at the recent meeting of the Tri-State Maintenance Assn., held

in Hotel Penn-Harris, Harrisburg, Pa., Dec. 12, 1951, was the establishment of "pars" of efficiency in the maintenance

department of the transit industry. This discussion brings down to the local level the plans underway by the American Transit Assn. to establish a new technique to lead the way to greater efficiency in the transit industry.

Guest speaker at the Tri-State meeting was Harley L. Swift, president of the ATA and president and general manager of Harrisburg Railways Co. Swift also was a member of the original panel of the national association which developed the "Standard Pars" plan and presented it to the members of the national group.

While the plan embraces all phases of transit operation, President Swift elaborated on the phases relating to maintenance. He pointed out the need for some yardstick by which a transit property could measure the efficiency of its various maintenance services. No factors used at present seem to furnish this needed information, he said.

"The study of available maintenance data only leads to confusion. Take any two comparable properties and compare their maintenance man-hours, or their total maintenance costs, with apparent vehicle condition, the number of road failures, or any other factor, and there appears to be no relationship. The one property's vehicles will look so much better than the others, will have fewer schedule delays or need for emergency service—and the favorable property isn't always the one with the highest maintenance cost or greatest total of maintenance man-hours.

"Of course, there are many variables which complicate our study as it relates to maintenance. Some properties have superior maintenance equipment; farm out little or nothing. Other properties are not as well equipped. Some carry quite an elaborate stock of parts, others seem to get by with less. The number of different types and makes of vehicles is a factor. And so on.

"However, our main objective is to develop a par for the course, as is found on any golf course. No two of these courses are exactly alike, yet each has a par which the players attempt to meet or beat."

Swift's remarks were preceded by those of Allen Coolbaugh, president of



AIRTEX Exclusive Core Credit Policy

Extra Profit!

All old fuel pump cores worth \$\$\$\$\$\$ on trade-in for new Airtex pumps



Extra Appeal!

Enables you to offer special bonus to car owners

TURN IN YOUR
JUNK FUEL PUMPS TODAY AS
TRADE-INS ON NEW AIRTEX FUEL PUMPS

AIRTEX AUTOMOTIVE DIVISION
FAIRFIELD, ILL.
World's Largest Independent Fuel Pump Manufacturer

Discuss "Standard Pars"

the Tri-State Maintenance Assn. and superintendent of Bus Maintenance, Wilkes-Barre Transit Corp.

Maintenance Man's Viewpoint

"AT THE recent American Transit Assn. Convention at Cincinnati," said Coolbaugh, "one of the principal subjects discussed was that of Standard Pars, which have been described as 'a set of ideal ratios against which transit management can measure operating efficiency in all departments. Properly established, these ratios can be a positive tool which management can use in almost every management action.'

"This definition is not ours, but that used in a report of the convention.

"Further on in the report, we find standard pars described as 'yardsticks to measure the operating efficiency of the transportation, maintenance and other departments, as well as providing a close check on all important operating cost factors.'

"If a set of such standards can be developed it would indeed fulfill the claim that 'the concept of standard pars for the transit industry probably represents the most significant contribution to new industry thinking in the last dozen years.'

Management Will Call on Shop

"THE subject is brought up at this meeting because its supporters state that, after top management establishes general pars for the four principal departments of the transit industry, each department—such as this association represents—will be called upon to establish, in consultation with the top officials of our companies, detailed pars for the several subdivisions of maintenance of equipment.

"It is not too early to begin thinking about this matter.

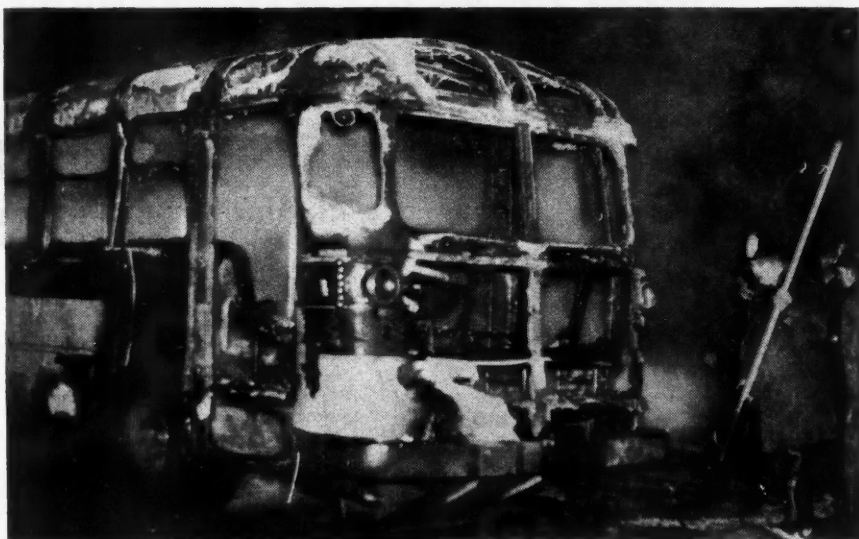
"As you know, this association has, since its organization, discussed and compared costs of certain items of maintenance and such closely related subjects as fuel and oil consumption. Another item or unit cost discussed is the man-hours of maintenance labor and servicing required per 1000 bus miles operated. This is an over-all yardstick of the efficiency of maintenance.

Perhaps seat miles would be a more accurate measure; this is a subject this association should consider.

No Single Par Feasible

"BUT, in my opinion, there is no single par or yardstick which will measure the different elements of maintenance. It may require four or five, or even more, pars for the maintenance department. Bus miles (or seat miles) may be a proper unit to judge maintenance cost—since the wear and tear on buses is fairly proportional to the miles operated—but it is not an accurate measure for servicing buses.

(TURN TO NEXT PAGE, PLEASE)



NEGLECTED WIRES cause FIRES!

Defective wires and cables are the worst fire hazard in cars, trucks, buses. Here's proof!

In Chicago alone, 3,633 motor vehicles burned up in 1949. Of these, 2,298—that's 63%—caught fire because of defective wiring!

National Safety Council figures like these tell the same story all over the country—with "caused by defective wiring" fires running as high as 92%!

Remember this! Motor Age editorial investigation of 1940-47 cars proves that:

- 5 out of 10 need light wires!
- 6 out of 10 need battery cables!
- 2.5 out of 10 need ignition wiring!

This is an indication of what happens to wire and cable under the punishment of heavy duty service in trucks and buses.

Eliminate this fire hazard from your own fleet by regular checking of the wire and cable on every unit. When the fire trucks roll, it's too late. When insulation is cracked or worn or conductors corroded, install Crescent Wiry Joe Wire and Cable immediately. That's the way to eliminate a great fire hazard, and also increase engine efficiency.



THE CRESCENT COMPANY, INC., Pawtucket, R. I.

Check the wire and cable on every car!



Standard Pars

Continued from Page 111

"A bus which operates 100 miles a day will require just as much servicing as one which operates 200 miles a day. The proper measure of cost of servicing is, therefore, the number of buses operated; the same is true of washing, cleaning and inspecting buses. Bus hours, route miles and gross revenue are proper measures for certain operating expenses.

"Par also is defined as a result obtainable under ideal conditions: A new first class vehicle, operated by thoroughly competent operator, over level roads in perfect condition, under perfect weather conditions, etc., etc.

"Of course, there is no such operation, so a factor or allowance must be established for each property—and who is to say what that factor should be?

"Transit operations are affected by the quality, age and size of the vehicle; the grades over which it operates; the

condition of the pavement; the skill of the operators; the scheduled speed; the frequency of stops; traffic congestion; weather and climatic conditions; traffic regulations; quality of fuel, oil and maintenance materials; adequacy of shop and service equipment and other facilities; number of reserve buses; etc., etc.

"There is a vast difference in these conditions on different properties and it seems that it would require the wisdom of Solomon to fix the proper allowance from the ideal 'par.'

"As an example, our company has made an analysis of the statistics submitted by 23 top-grade bus properties. Using some additional yardsticks, which we thought appropriate to get 'unit' cost on these operations, we find important items varying not only 15, 20 or 25 per cent but 70, 80, 100 per cent and more.

"Comparing three of these properties, of approximately the same size and very similar operating conditions, we find such variations as follows:

Fuel consumption—20 per cent
Tire mileage—33 per cent
Oil consumption—78 per cent
Man hrs. per M bus miles—25 per cent
Miles operated per delay—102 per cent
Maintenance employees per supervision—133 per cent
Bus miles operated per maintenance man—230 per cent
Buses per service man—170 per cent
Buses per washer—200 per cent
Cost of shops, etc., per bus—117 per cent
Per cent of buses painted per year—450 per cent
Road calls due to maintenance—100 per cent

"Amongst the 23 properties studied, the number of road calls per 100,000 bus miles, due to maintenance failure, varied several thousand per cent.

"Differences in accounting practice may account for some of these variations. It may be a part of the job of establishing pars to set up detailed definitions and rules for the classification of inspectors, greasers, washers, cleaners, utility men, etc., etc.

"But, it is apparent that the establishment of 'Standard Pars' is not going to be accomplished easily or quickly, if at all."

★ ★ ★
"Tailor Maid?"

First Grease Monkey: "Say, Mike, how'd you get that shiner?"

Second G. M.: "From coughin'!"

First G. M.: "But how could you get a black eye from coughin'?"

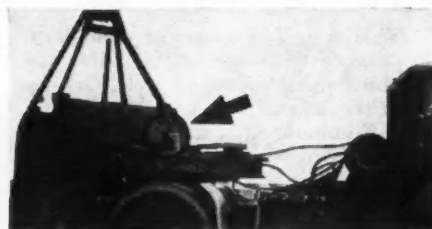
Second G.M.: "I coughed in a clothes closet."

Fast, Safe Tie-Downs Utility Cable Vise

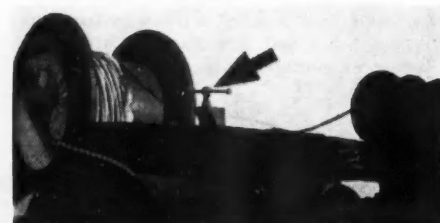
Most Loads
3
Minutes



In Electric Utility Service



Holding Underground Cable



General Contracting Application

U. S. Pat No. 2347601

★ Eliminates Expensive

Hand Ratchets,
Cable and Rope

★ Saves Manpower . . .

Only One Man Needed

HERE is the first real advancement in tying-down bulky, heavy machinery, road building equipment, and irregular-shaped loads.

★ Instead of hand ratchets, cable and rope . . . with a crew of expensive manpower . . . draw the load onto the trailer with a winch, then tie it down simply by turning the handle of the UTILITY CABLE VISE.

★ Instead of a half-hour tie-down time, an average of 3 minutes per load is required with the UTILITY CABLE VISE.

★ It has high holding capacity—the smallest model holds over 26,000-lb load without slippage.

★ It is flexible. Slack between winch and vise permits free turning of tractor.

★ Easy on Cable. Unique friction grip will not crush, flatten, distort, kink or chafe.

★ Requires no maintenance. One large public utility has been using these vises for over 5 years without any attention or maintenance.

★ Made in three sizes: Small, $\frac{3}{8}$ to $\frac{1}{2}$ -in. cable; medium, for $\frac{1}{2}$ to $\frac{3}{4}$ -in. cable; large, for $\frac{3}{4}$ to $1\frac{1}{4}$ -in. cable.

WIDE FIELD OF APPLICATION

The UTILITY CABLE VISE will soon pay for itself in any of these fields of operation and transportation:

★ General Contractors ★ Riggers
★ Utilities—Telephone, Gas, Electric, Water
★ Highway Construction ★ Nurserymen
★ Merchant Marine ★ Stevedores
★ Armed Forces ★ Heavy Machine Industries
—And all other applications where loads are tied-in on low-bed trailers.

C. A. SCHEIRER

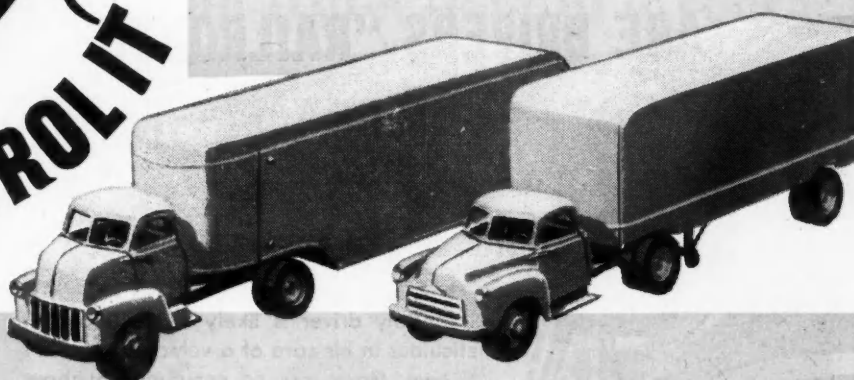
2403 Merwood Lane, Havertown, Penna.



TDA

the greatest name in

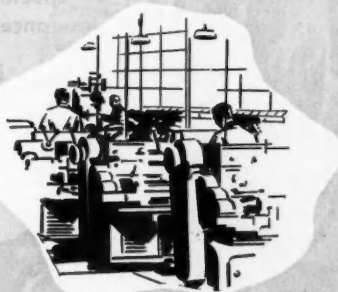
BRAKES



Wherever braking is needed, you'll be safe with TDA, the greatest name in brakes! There's a TDA Brake to fit any application—whether industrial or automotive—regardless of type or size. The vital importance of rugged, reliable and durable brakes on automotive equipment is unquestioned. But it is well known that all brakes do not do the same effective job. TDA

Brakes are known throughout the automotive industry for safe, sure performance at lowest possible maintenance cost. As a result, there are now more TDA Brakes in actual use on heavy-duty commercial vehicles than any other make. And TDA Brakes enjoy a similar outstanding reputation in the industrial fields. If you need expert braking advice, contact TDA!

TDA Brake Division's highly specialized staff and fully equipped plant are prepared to solve your specific braking problem—from the smallest industrial machine to the largest commercial vehicle. If there is no TDA Brake now in production which meets your special requirements, TDA's engineers will study your problem and advise you on its solution. More than 40 years of braking experience stand behind the positive stopping ability and faster, smoother operation of every brake produced by TDA!



TIMKEN

Detroit

BRAKES

TDA BRAKE DIVISION

THE TIMKEN-DETROIT AXLE COMPANY
ASHTABULA, OHIO



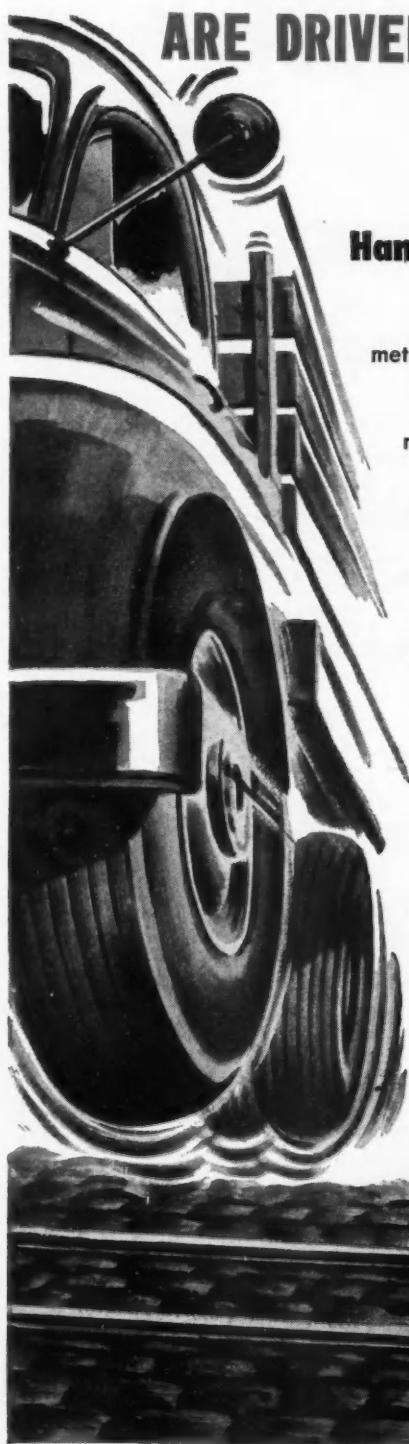
WHATEVER YOUR BRAKING
PROBLEM—TAKE IT TO TDA!

TDA BRAKE DIVISION—DEPT. 7-A, ASHTABULA, OHIO
Please mail brake information on these applications:

NAME _____
COMPANY _____
ADDRESS _____
CITY _____ STATE _____



Beck Revises Intercity Coach



ARE DRIVERS "RAILROADING" YOUR VEHICLES?

Handy Governors Will Stop It

Any driver is likely to be less than meticulous in his care of a vehicle he doesn't own. Many feel no compunction about "railroading" your vehicles. Drivers do most of their work away from supervision . . . abuses are hard to correct.

Handy Governor will stop "railroading" —stop practices which run up costs and wear out vehicles before their time.

The savings in tire, fuel, and lubricant costs, engine repairs, brake maintenance and general maintenance are spectacular. Reduced accident and insurance costs are equally important.

Let us show you some figures on savings — and tell you how little it costs to get them.



KING-SEELEY CORPORATION

ANN ARBOR, MICHIGAN

PLANTS AT
ANN ARBOR, SCIO,
YPSILANTI

Two new intercity bus models are currently in production at the C. D. Beck & Co., Inc., Sidney, Ohio. The larger of the two, the "Mainliner 5000 Intercity Coach" is available in 33 or 39 passenger sizes. The other model is a 29-passenger. The structural features of the two models are quite similar.

The 29-passenger intercity coach, shown above, is powered by either a Cummins diesel or an International gasoline engine. It measures 33 ft 6 in. from bumper to bumper, with a beam of 96 in. over the rear tires. When empty, it clears 105½ in. from the road. The 5000 series Mainliner is from 33 ft 10 in. long and 96 in. wide, 115 in. high.

Structurally, the 29-passenger body is of welded tubular steel with a full-length, frame-type understructure, made rigid by an "X" type side frame. The rivets which hold the body panels in place from skirt to skirt may be removed from the outside without disturbing the interior fittings.

The door to the engine compartment in this model lifts up and is held in position with a safety prop. The small window seen at the rear of the coach is in a baggage compartment, which, for this model is, of 196 cu ft capacity.

The seating arrangement of this job consists of 12 double, reclining seats with a five-place divan to the rear. The door opens mechanically by a lever to the right of the driver. On his left, there is a control panel which operates the electrical system.

Lighting consists of ceiling lights located over the aisle between the baggage lofts, with individual units for reading located by each seat under the baggage loft in a full-length duct.

More than 300 cu ft of air per minute may be drawn into the vehicle through its ventilating system. The intake ports are located on both sides of the roof near the front of the bus.

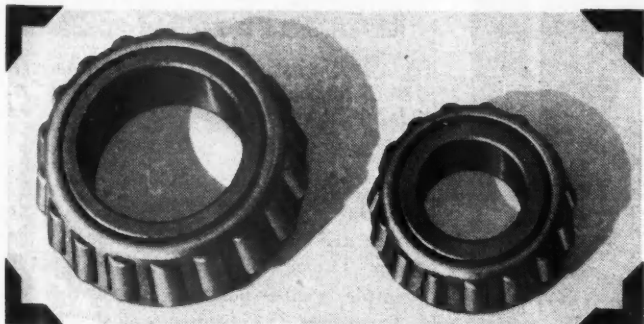
The standard power plant for this bus is the International RD 450 engine, operated on a 12-volt ignition system.

STANDARD ENGINEER'S REPORT

LUBRICANT	DATA <i>RPM Wheel Bearing Grease</i>
UNIT	<i>Wheel bearings-1½ ton trucks</i>
OPERATION	<i>City deliveries</i>
CONDITIONS	<i>Continual shock loading</i>
FIRM	<i>Olson Baking Co., Los Angeles</i>

No wheel-bearing trouble on truck fleet in 3 years!

FIFTY-THREE 1½ TON TRUCKS like this, operated by the Olson Baking Co., Los Angeles, and lubricated with RPM Wheel Bearing Grease, did not lose a single wheel bearing or need any kind of wheel-bearing repair in 3 years, despite continual shock loading caused by severe braking and stop-and-go driving. Besides the numerous stops made while bucking heavy city traffic, each truck makes from 50 to 70 store stops a day. All wheel bearings are inspected, and re-packed with RPM Wheel Bearing Grease at 10,000-mile intervals.

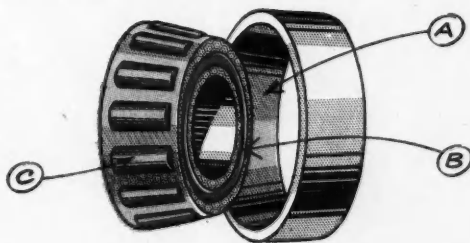


STILL IN PERFECT CONDITION after 56,410 miles of tough city driving, this is a typical bearing from the Olson fleet. It has gone 8,877 miles since its last lubrication with RPM Wheel Bearing Grease and was only pulled out for inspection. Unit was put back into regular service.

REMARKS: RPM Wheel Bearing Grease is made with high quality paraffin base oils and contains no harmful fillers. It maintains a correct and uniform consistency under all operating conditions and is stable in storage. To meet different weather conditions, it comes in both medium and heavy grades, and is easily applied either by grease gun or by hand.



How RPM Wheel Bearing Grease protects bearings under all conditions



- A. Provides a tough, resilient lubrication film that protects against heavy pounding and overload pressures.
- B. Sticks tightly to all bearing surfaces ...feeds slowly and stays in smallest clearances.
- C. Resists water and extreme heat...won't melt and run off onto brake linings.

FOR MORE INFORMATION about this or other petroleum products of any kind, or the name of your nearest distributor handling them, write or call any of the companies listed below.

TRADEMARK "RPM" REG. U.S. PAT. OFF.

STANDARD OIL COMPANY OF CALIFORNIA
225 Bush Street • San Francisco 20, California

THE CALIFORNIA COMPANY
P. O. Box 780 • Denver 1, Colorado

STANDARD OIL COMPANY OF TEXAS
P. O. Box 862 • El Paso, Texas

Lincoln's New Power Plant

Continued from Page 66

above the level of the rocker box floor. This results in a continuous face to which the gasket is attached. By raising the level of the cork gasket, the usual pool of oil in the compartment is kept from seeping into the gasket material; thus it aids in keeping the engine clean and improves oil economy.

Referring to the transverse section, attention is drawn to details of the

valve train. With overhead valve design, the engine features larger diameter valves. However, this is accompanied by several unusual features. In the first place, Lincoln has discarded conventional valve guides, the valve stems being guided in bores directly in the parent metal of the head. This lowers exhaust valve temperature by 100-125 deg F.

The piston and ring set-up follows the same pattern as on the former engine. Connecting rods, however, are of the new I-beam section design, stemming from stress analysis studies, to achieve rigidity and durability. To this end the outer web is continued right into the edges of the big end, with a counterbore eccentric with the con rod bolt hole. Heads of con rod bolts are specially formed to fit the counterbore and, consequently, are self-locking.

There is an improved arrangement for driving the distributor and oil pump. Distributor drive now is positive, driving directly from the camshaft gear. The oil pump is mounted outside the oil pan on the left hand side of the engine. This was done to simplify maintenance and facilitate removal of the pan from underneath the chassis. The engine is fitted at the factory with a full low flow oil filter, mounted horizontally outside the crankcase on the left.



Overhead valves are larger in diameter. Both intake and exhaust have rotators. Johnson hydraulic valve lifters are used.

A short, stiff, counterweighted five-bearing crankshaft is used. Connecting rods are mounted side-by-side on the pins. The new vibration damper is of the simple rubber-bounded flywheel type. Discarding the former camshaft gear drive, the Lincoln now employs a silent timing chain drive. The water pump is mounted integrally with the block. The fan is driven by means of a narrow wedge type belt.

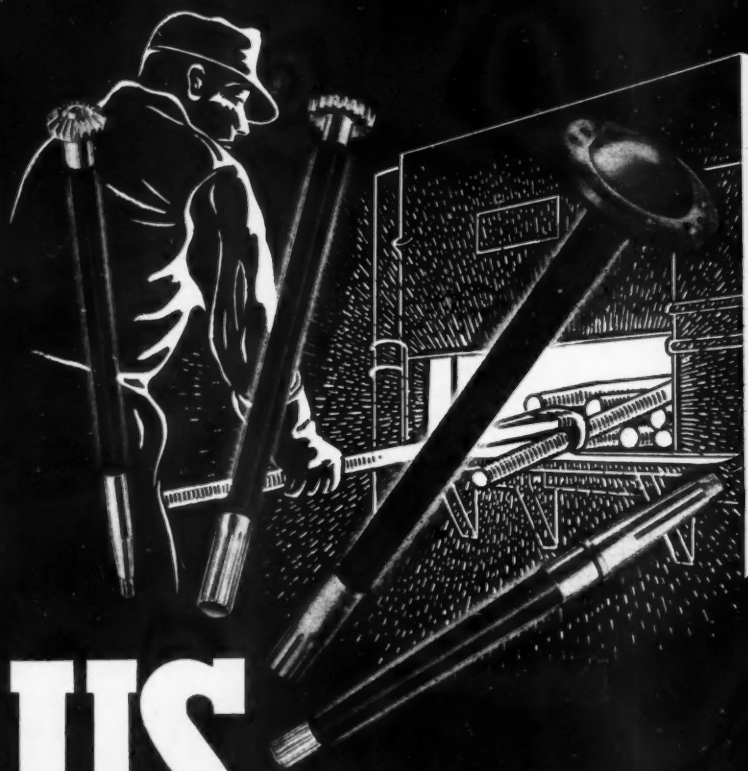
Being a high compression ratio engine, with an initial compression ratio of 7.5 to 1, the Lincoln engine will be timed for optimum operation on "premium" fuel. However, with minor adjustments, it can operate on "regular" fuels with slight sacrifice in output. The engine features a special high turbulence combustion chamber, which, in combination with mechanical octane improvement features, is expected to produce superior performance and increased fuel economy.

END

Please Resume Reading Page 67

COMMERCIAL CAR JOURNAL, January, 1952.

HERE IS ONE REASON U S AXLES ARE TOUGHER AND LONGER LASTING



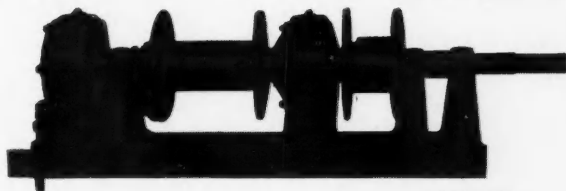
US AXLES

The most modern techniques are employed in heat treating U S Axles. Combine proper heat treating with the best alloy steels and you get a quality shaft that will last twice as long. Make your next call the jobber who sells U S Axles.

THE U S AXLE COMPANY, INC., POTTSTOWN, PA.



*with a TIME-**SAVING** Braden Winch...*



**BRADEN
DOUBLE DRUM MODEL
M9-12A6KES**



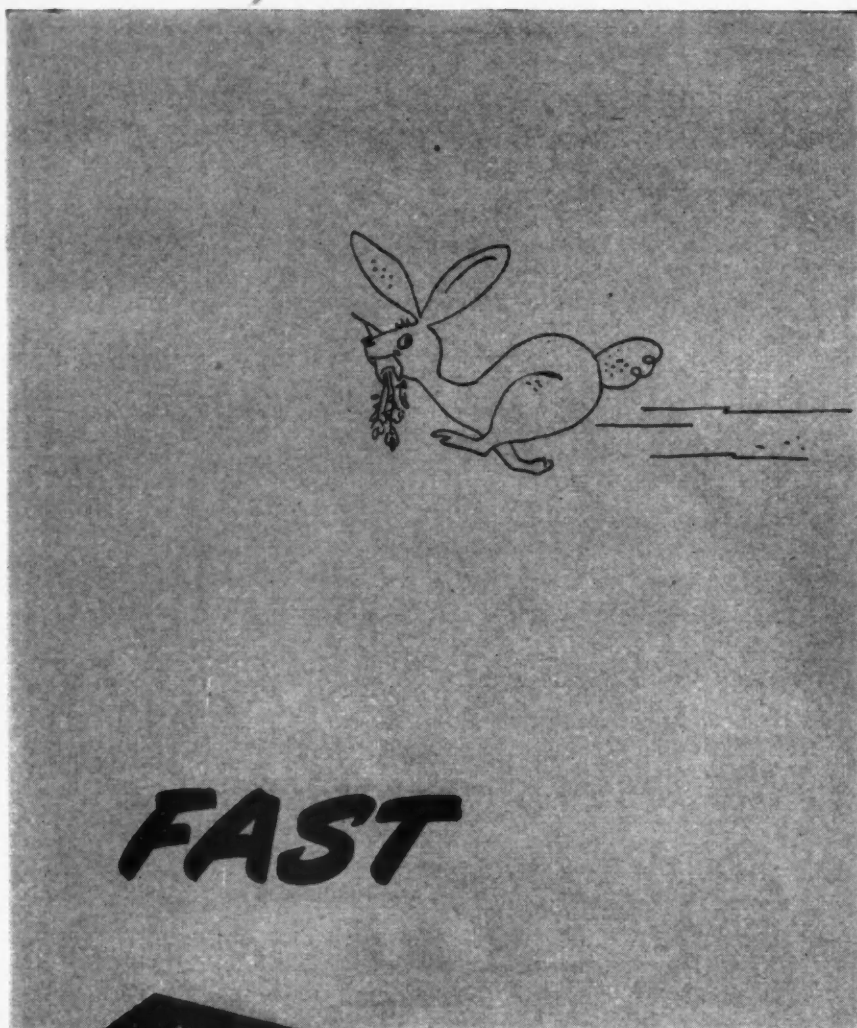
In Florida, where palm tree transplanting is an every day job, Braden Winches do the hard work. Tall, awkwardly balanced palm trees are easily and quickly up-rooted loaded on trucks, and planted again when time-saving Braden Winches are used on the nurseryman's truck.

Whether you move trees, tanks, heavy oil equipment or machinery, there's a Braden Winch for the job. See your nearest Braden distributor today.

BRADEN WINCH COMPANY

P. O. Box 547, Broken Arrow, Oklahoma





KESTER ACID-CORE SOLDER

FAST In Soldering Action
FAST In Saving Your Time

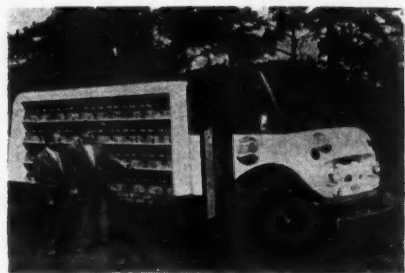
Are you stealing "carrots" from your own garden of profits by using "lower price and just-as-good solder," instead of 24 "karat" Kester? If so . . . you're fooling no one . . . not even a rabbit. He knows the genuine product when he sees it!

KESTER SOLDER COMPANY

4205 Wrightwood Ave., Chicago 39
Newark 5, New Jersey • Brantford, Canada



Parcel Delivery Conversion



A body made from a parcel delivery model Ford has been turned out by Herman Body Co., St. Louis for R. E. McKee of the Hygrade Water and Soda Co., St. Louis, Mo., a Pepsi Cola bottler. The cab has a curb-height entrance on both sides, with jack-knife doors. It is 79 in. wide inside the cab, has a wheelbase of 134 in. with an 84-in. cab-to-axle measurement. The use of the Ford F-6, 16,000 gw chassis with a parcel front end promises to have many possibilities, according to Herman.

Light Weight Autocar

The Autocar Co. has developed a new light-weight tractor in the heavy-duty field, one of less than 10,000 lbs. (including fuel, oil and water) with a gross hauling capacity of 50,000 lbs. Front axle of the C-65-T is set back under the engine, it bears 5,620 lbs. of the total chassis weight of 9,390 lbs., leaving the rear axle with only 3,770 lbs. and able to carry a greater-than-usual semi-trailer load, with ideal weight distribution.



The 447 engine, which develops 145 hp. or, an optional extra, Autocar's 501 which produces 165 hp. is used in the tractor. Standard equipment includes the 447 engine, ET rear axle, 10.00/20 tires and spoke wheels. The Driver Cab with which it is fitted is an extra. Equipment such as 10.00/22, 11.00/20 and 11.00/22 tires, auxiliary transmissions and two-speed rears can be had on the new model as optional extras.

The C-65-T has a 142-in. wheelbase, Autocar transmission with helical gears in third, fourth and fifth speeds, pressed steel-alloy frame to which all brackets and cross members are bolted for ready servicing.

New Year's Spirit(s)

Truck Dispatcher: "Wasn't that your half brother I saw you leading home last night?"
Driver's Log Clerk: "Half-brother nothing! That was my FULL brother!"

Even Ox carts Had POWER STEERING Why Not Trucks?



When the earliest oxcart creaked and groaned its way in man's most ancient effort at wheel transportation, the driver who shouted the primitive equivalent of "gee" and "haw" had the benefit of power steering. For, he only guided the oxen with his voice or whip—the animals supplied the power for turning.

These days about all we see of the ox is the hamburger in the corner joint, but in taking the animal out of transportation we have loaded part of its work on the drivers of trucks and other vehicles. In trucks without power steering, the driver's muscles have to supply the turning effort. The power must come from his arms, shoulders and back.

Is it progress when we build vehicles that require more physical effort to steer than ox carts? No wonder drivers tire and become less efficient—lose the fresh alertness that assures safety.

Vickers Hydraulic Power Steering is much better than the ox because you don't have to yell at it or beat it. It takes the work out of steering . . . requires little more effort than a wave of the hand. Wheeling a truck around is so much less tiresome that the driver remains fresh, efficient, safe. For further information, ask for Bulletin M-5100.

VICKERS Incorporated
DIVISION OF THE SPERRY CORPORATION

1418 OAKMAN BLVD. • DETROIT 32, MICH.

Application Engineering Offices: ATLANTA • CHICAGO (Metropolitan)
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ROCKFORD • ST. LOUIS • SEATTLE • TULSA • WASHINGTON • WORCESTER



VICKERS hydraulic
POWER STEERING
Is Effortless, Positive and Shockless



4674

Judging Accident Responsibility

Continued from Page 54

was clear to pass, but this other car, coming towards me like the wind, clipped my left front fender before I have a chance to get back. The slow moving truck obstructed my view, and this other car was going too fast."

INVESTIGATOR'S PROBLEM:
Was our driver the CAUSE? . . . or VICTIM? . . .

Now that you have passed judg-

ment on these cases, turn to Page 134 to see how you made out. Don't be disturbed if you can't give yourself a perfect score. Very few safety men have.

(The author has supplied CCJ editors with a complete set of the cases which he uses in teaching correct judgment of accident responsibility. If any reader would like to receive the complete set, with diagrams and answers, the editors

will be glad to oblige. However, due to the limited number of copies on hand, only one set will be mailed to each fleet. Ask for Donald Buck's "Training Test For Accident Investigation." Address, Editor, COMMERCIAL CAR JOURNAL, 56th and Chestnut Streets, Philadelphia 39, Pa.)

Test Your Drivers

HAVING gained the fundamental thinking behind this type of judging accident responsibility, the fleet safety man is but on the threshold of a positive and practical means of reducing fleet accidents. The next step is to educate the driver to think and act along the same lines.

Needless to say, to suddenly spring this type of accident judgment on the driver would throw him into confusion and may result in bickering, resentment and griping. Today's cases will have to be judged as yesterday's—perhaps tomorrow's also.

However, at the very earliest opportunity, the drivers should be called together and told the facts: That with the national accident rate still climbing, with accident settlement costs rising, with accident insurance premiums on the increase, with business competition becoming increasingly stiffer, and with profits gradually becoming smaller, it becomes imperative to adopt a more realistic approach to judging accident responsibility.

The men should be told that they are professional drivers of the highest caliber and, therefore, it is proper to scrap the amateur standards of judging accident responsibility employed only by part-time, weekend passenger car drivers.

The few accident cases cited in this article then could be given each driver as a written test. To save time, the answers could be supplied to the group after the test questions have been given, and each driver asked to rate himself as to his knowledge and understanding of accident responsibility.

Such a meeting could be a howling success if a question and answer period is provided.

Of course, just one meeting devoted to the explanation of the new principle of judging accident responsibility will not be sufficient to get the desired results. Several successive meetings should be devoted to the study of accident situations. Visual aids, such as those previously men-

(TURN TO PAGE 122, PLEASE)

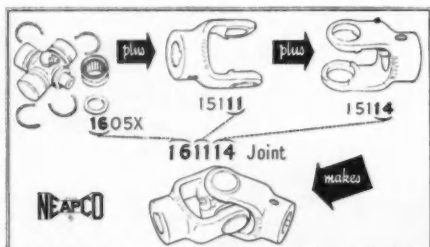
NOW IT'S EASY-
to order exactly the Joint you want
from the simplified Neapco Catalog!



1500 Series
Plain Bearing
1600 Series
Needle Bearing

SIMPLIFIED NUMBERING SYSTEM

There is a Neapco size for nearly every light duty P.T.O. requirement. Ordering the right size is made easy because the number of the complete joint is simply a combination of the numbers of the three major components from which it is assembled. This allows you to make your own combination of length, bore, and type—quickly, accurately.



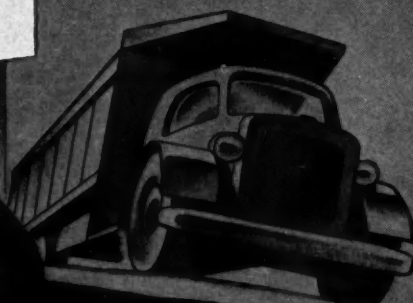
This diagram shows a typical joint combination—1605X journal assembly plus 15111 end yoke plus 15114 end yoke makes a 161114 Joint. It's that easy!

CATALOG: Not shown in this ad, but included in Catalog PT15B are unwelded center Assemblies and Rectangular Telescoping Center Assemblies. Copy of Catalog free if requested on your business letterhead. It's a valuable book!

NEAPCO POWER TAKE-OFF JOINTS
UNIVERSAL

NEAPCO PRODUCTS INC. · POTTSTOWN, PA.

VELVETOUCH LASTS LONGER



... because it's **All-Metal**

Designed especially for use wherever frequent starts, stops and overloading cause excessive clutch plate wear... experienced operators replace with Velvetouch. Because Velvetouch lasts longer! Being all-metal, Velvetouch clutch plates run cooler... require fewer adjustments... give you added miles of smooth, trouble-free service. For more facts about how Velvetouch can cut costs, contact your jobber, our nearest branch... or The S. K. Wellman Co., 1374 E. 51st St., Cleveland 3, Ohio.



Velvetouch

THE S. K. WELLMAN CO. WAREHOUSING CENTERS

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PHILADELPHIA—97 E. Montana St., Philadelphia 19, Pa.

PORTLAND—636 N. W. 18th Ave., Portland 9, Oregon

SAN FRANCISCO—424 Bryant Street, San Francisco 7, Calif.

TORONTO, ONTARIO
The S. K. Wellman Co. of Canada, Ltd., 2839 Dufferin St.

EXPORT DEPARTMENT—
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Chicago 3, Ill., U. S. A.

WASHINGTON OFFICE—
1101 Vermont Ave. N. W.,
Washington 5, D. C.

NEW GUN IRON BRAKE DRUMS



ELIMINATE
Heat-Checking

REDUCE
Squeal

at LOWER COST-PER-MILE, too

Hunt-Spiller Brake Drums are now being made of a new Gun Iron alloy which eliminates heat-checking in all but the most severe cases and at the same time equals or surpasses the wear-life of previous Gun Iron drums. In addition, in most instances, these drums take the squeal out of heavy-duty braking.

Hunt-Spiller pioneered the first cast brake drum over twenty years ago . . . a Gun Iron drum that wore so well it shortly was adopted and preferred by the bus and truck industry. This *new* material, an alloy of Gun Iron, is the result of years of research in the Hunt-Spiller laboratories to increase wear-life and particularly overcome the serious problem of heat-checking. On-the-road performance records prove the success of that research.

Hunt-Spiller drums are made to original equipment specifications for most busses and trucks. They are accurately machined for easy, kink-free installation; fully guaranteed. For complete details send for new descriptive bulletin which includes some outstanding results reported by users.



HUNT • SPILLER

MANUFACTURING CORPORATION

AUTOMOTIVE DIVISION

399 DORCHESTER AVENUE • SOUTH BOSTON 27, MASS.

Judging Accidents

Continued from Page 120

tioned, should be used—especially diagrams on a blackboard with movable vehicles, road intersections, traffic lights, and so on.

Use "Kangaroo Court" Trials

ONE of the most effective way I've found to get drivers to grasp the new principles is the use of the so-called kangaroo court. Real or typical accident situations can be used. A panel of drivers—or drivers, supervisors and, perhaps, a union representative—should do the judging. However, when the accident has been explained, the judges should aim to determine if it was preventable or non-preventable—and NOT who hit whom or who should get the blame.

This procedure is being employed by more and more fleets. It works well when used to review every accident. However, I use a refinement and improvement that has dramatic effect. We let our driver describe all conditions previous to, during, and after the accident. We listen sympathetically. Our attitudes are calm, kindly and friendly.

When all apparent discussion of the case is over, we slip this question in gently: "If you found yourself in this same situation again, what would you do to avoid the accident?"

Then a most amazing thing happens. The driver will tell you that the next time, by golly, he won't let another guy get him into a similar situation. No, sir. He'll let him have the right of way, or he'll stay away from him (keep the proper distance), or he'll keep his speed down even if he'll be behind in his schedule, or he will do this or that. He even might go to the blackboard and show how he could have avoided the accident!

Very often his face gets very red when he realizes what he has done—admitted that he contributed to the accident. If he doesn't catch on immediately, we ask him kindly why he didn't do that kind of maneuvering to avoid the present accident.

But then we don't ride him. We drop the subject and go on to the next case or adjourn the court. We let the fellow go on his way thinking over what he told us. Experience

(TURN TO PAGE 125, PLEASE)

Judging Accidents

Continued from Page 122

shows that he will think about it for a long time to come.

Certainly, this is far better than trying to ram the very same words down his throat—while he's thinking up counter arguments, excuses and alibis. His own admission that the accident was avoidable is far more effective than our say so.

Of course, some of the old boys are very cagey. They may have to be led to the blackboard and asked did they think that by turning this way or that, or by coming to a full stop, or by doing this or that the accident could not have occurred. In the end, they will have to admit your logic. But it should be done in a friendly and impersonal way. By all means be just as cagey to avoid argument.

Ofttimes having another driver explain the means of avoiding the accident will get better and more convincing results than the same treatment from "some theoretical driver"—as safety men, supervisors or other non-full-time drivers are frequently regarded.

Once the drivers know that, in the future, their accidents and safety records will be based and judged in the light of these standards, they'll surely adapt themselves to the new rules. Appeal to their professional pride. It may be hard to teach the old boys new tricks, but they will learn if these standards are rigidly adhered to.

Protective Attitude Illogical

FRANKLY, the greatest problem will not be with the driver. Given a set of rules, he will adjust himself easily enough. The greatest problem will be for the driver supervisor and, perhaps, the safety director to adjust their thinking.

The driver supervisor, for example, being closer to a particular group of drivers, has the tendency to develop a protective attitude over them. While, generally, he knows their faults, and lets them know that he does, he is inclined, often unconsciously, to take their sides when they are in trouble. In so doing, he defeats the very objective for which he is working.

Protection of our possessions—whether personal property, or members of our own or the driver family

—is one of the primitive instincts which man and animal alike have carried with them throughout the ages. It is an admirable instinct—if tempered with logic.

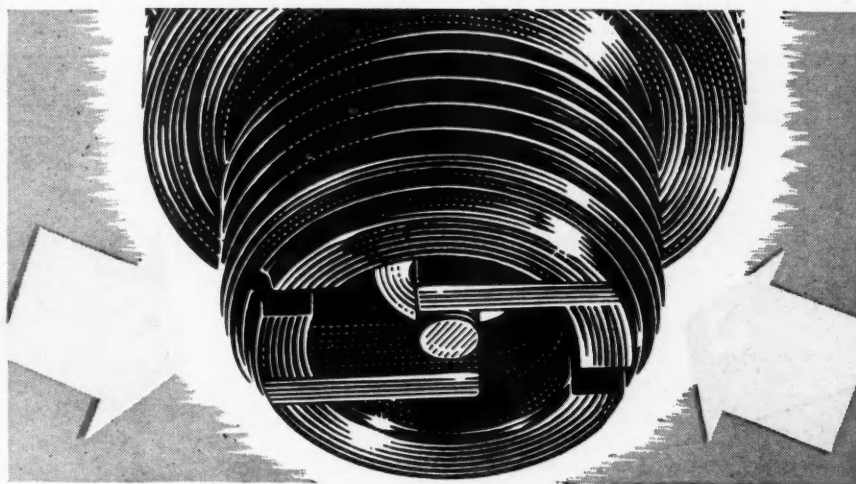
When an accident occurs, most of us instinctively try to protect ourselves, and those under our supervision, and cast all the blame on the other fellow; logic notwithstanding.

Fleet safety men and driver supervisors can do a better job of protection—protection of job and future—if they not only will teach their

drivers defensive driving techniques but, also, an honest and self-corrective attitude toward accident responsibility. The long view of the ultimate benefits of this practice—for the driver, supervisor, safety director, and the company—must be taken to achieve best results.

In previous articles (See "Attitude, Key to Accidents," January, 1951. Also, "Training, Key to Safe Driving," June, 1951.—Ed.), I gave typical instances of such misguided pro-

(TURN TO NEXT PAGE, PLEASE)



NEW *Double-Duty* SPARK PLUGS FOR *Heavy-Duty* USE!



Here's the new spark plug you've been hearing about—Hastings Aero-type Shrouded. The electrodes are completely protected from the hot flame sweep. And there are two electrodes to give you at least twice the electrode life. The insulator is H. T. Aluminum Oxide, dissipates heat faster. Each plug has a solid copper non-loosening gasket that won't shrink in service, and is performance rated like the aircraft plug. Each is X-ray inspected and high-voltage tested.

Here at last is a double-duty spark plug for heavy-duty jobs—a plug that cools better, runs cooler, lasts longer in replacement service. Write for illustrated catalog.

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HASTINGS

Aero-type  *SHROUDED Spark Plugs*

Judging Accidents

Continued from Page 125

tective instinct by a driver supervisor.

By way of refreshing the memory, I'd like the reader to recall one of the points, "Passing the Buck," in the first article. This, in brief, was the situation:

"In one case, a truck stopped behind another vehicle on a steep hill because of a traffic light. The lead vehicle, in

starting up, rolled back into our 'hero,' damaging the front end of his vehicle. This driver and his supervisor were equal in their sincerity in blaming the accident on the 'carelessness of the other driver.'

"Investigation actually revealed that our truck driver had pulled up and stopped within four or five feet of the other vehicle on a steep hill—not only inviting disaster but denying the precious necessary time and distance to give a warning signal, should the other vehicle start to roll back.

"Less than one month later, another driver from this same location chanced to stop on a similar hill. On this occasion,

the 'other guy' pulled up behind our vehicle and stopped 'right under my tailgate'—according to our driver's report of the accident. In starting up, our vehicle rolled back 'just a little' damaging the radiator grille of the other vehicle.

"This time, our driver and his supervisor sincerely contended that the accident was caused by carelessness on the part of the individual who had stopped behind us, because 'he had followed too closely!'"

When I first came across this type of emotional, irrational and immature mentality, I decided it was unusual—a product of ignorance. As my experience in fleet safety grew, and as my travels carried me to the various parts of the world, I have altered my opinion but slightly. It is not unusual; it still is a product of ignorance.

The more I travel, the more I study, investigate and discuss accidents with safety men, the more I understand why the accident rate among professional drivers—as low as it is when compared to non-professional drivers—still is considerably higher than it should be.

As we review the "foregoing" incident in the light of cold logic, we can see that the supervisor was trying to protect his driver from being blamed for both accidents. Actually, he was doing more harm than good. He was instilling in the driver's mind several conditions:

1. Selling him that he was the victim instead of a contributing cause to the accident.
2. Encouraging the possibility of causing the same type of accident to occur in the future.
3. Establishing a precedent for other drivers in the fleet.
4. Encouraging a dual standard of interpreting and reporting accidents.
5. Encouraging one-sided defensive argument. Driver should be taught to think, "How did I contribute to this accident?"
6. Instilling a conviction in the driver that the supervisor or safety department will fight his accident battles.

All of these points have a bad effect on that fundamental principle of safe driving—Good Attitude. This only makes the supervisor's problems worse. Moreover, he also was making it difficult for himself to reduce the fleet accident rate.

If the driver, in the case cited, was taught professional defensive driving

(TURN TO PAGE 128, PLEASE)

Signal-Stat's REASON for DOUBLE FACE Signal Lamps

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Double Face lamps give you **Dual Protection**. They signal to the **SIDE** of the Vehicle as well as **Forward**. This means that even when a vehicle has passed the rear of your vehicle, your signal can still be seen. This **added PROTECTION** is worth many times the price difference, which is only pennies, over that of our single face unit.

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Judging Accidents

Continued from Page 126

techniques, then his accidents were judged by non-professional standards.

Let us not kid ourselves. An accident-producing situation is wrong whether the driver responsible is on our side or the other side. The driver relationship, the day of the week, the time of the year or the phase of the moon does not alter it.

Legal Attitude is Wrong

VERY often the fleet's safety director also acquires the driver supervisor's protective attitude—especially in the smaller fleets, where he may have several functions; that of driver supervisor, trainer, personnel manager, and safety director.

However, more frequently, he is inclined to adopt a legal attitude of judging whether his driver or the other fellow was at fault in an accident. He is closer to top management,

and has to play a more important part in accident litigations and insurance adjustments than the driver supervisor. Thus, it may be more difficult for him to shed the "It's not our driver's fault" attitude.

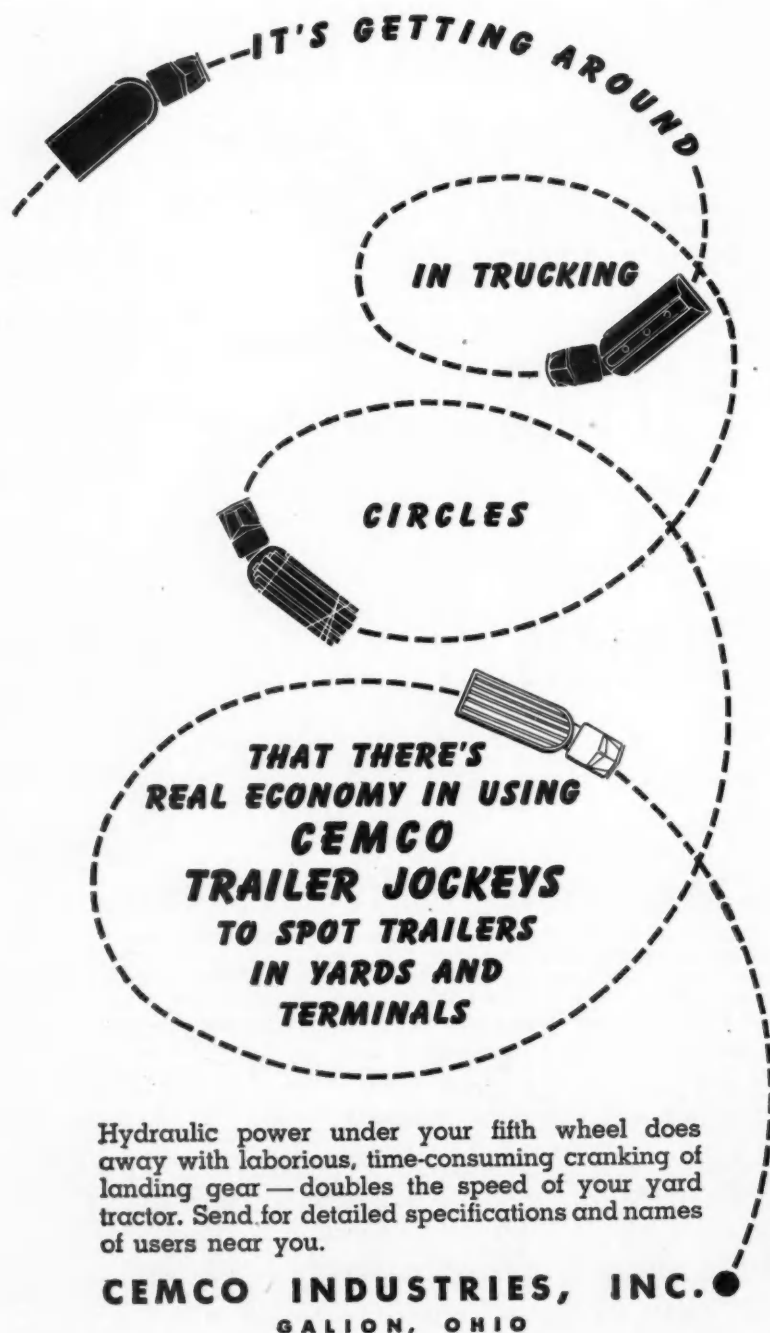
My experience prompts me to urge safety directors to let the Legal Department or the company's lawyers handle accident cases with legal techniques. It's up to them to split hairs and argue the cases according to established legal practice and precedent. The exception is, of course, if the safety director is called for legal testimony; there he should stick to the bare facts.

For effective accident reduction, and successful driver education on how they can avoid being involved as "contributors," two completely independent investigations, and two separate sets of reports, should be made out for every accident case. If you must make out both, give the "whodunits" to the lawyers.

Naturally, both driver supervisor and safety director have a common problem. Also, management expects that they will function as a harmonious team for the good of the fleet family. Yours will be a happier fleet family when all will try to live up to the highest driving standards; based not on the emotional instinct but on logic—the same logic that inspired the defensive driving techniques.

END

Please Resume Reading Page 55



IT'S GETTING AROUND

IN TRUCKING

CIRCLES

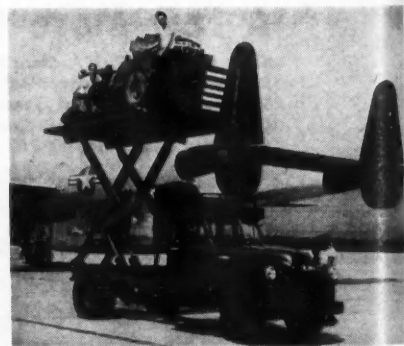
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REAL ECONOMY IN USING
CEMCO
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Hydraulic power under your fifth wheel does away with laborious, time-consuming cranking of landing gear—doubles the speed of your yard tractor. Send for detailed specifications and names of users near you.

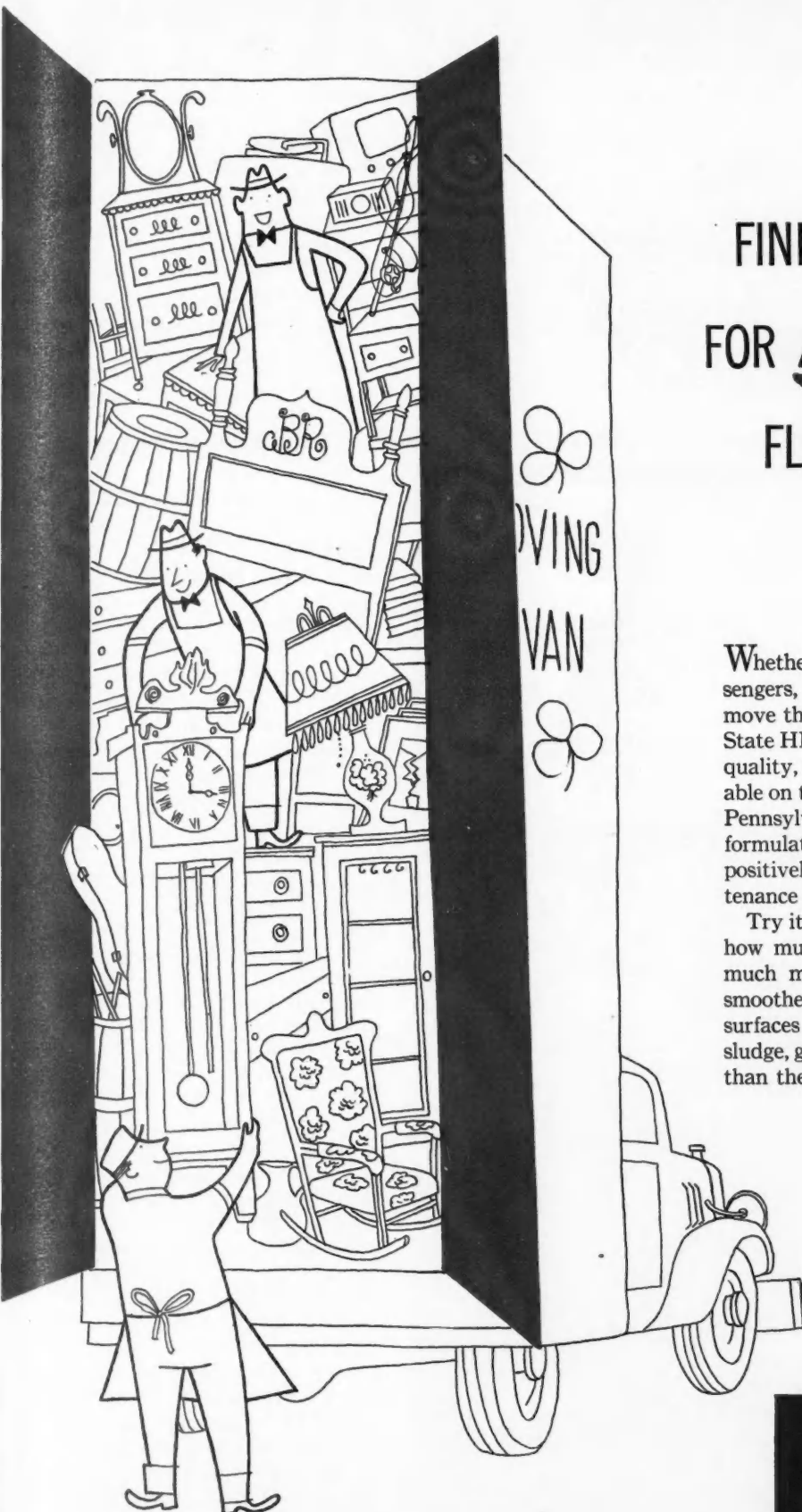
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Elevator-Bed Truck

This truck performs some tough jobs for the army, like lifting a 6-ton load up 13 ft. The truck was used to load heavy equipment into Air Force



cargo planes during the final phases of recent maneuvers held near Fort Bragg, N. D., where the picture was taken. The army purchased the finished truck, a GMC, from Airport Service Equipment Co., Inc., Mineola, N. Y.



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HD OIL
AND SUPERFINE LUBRICANTS

Washington Runaround

Continued from Page 31

present would cost a minimum of 2¢ a gallon more than cost of natural gasoline.

Construction Materials Eased

Those who are planning construction of terminals, warehouses and similar facilities will be helped considerably by a new order which NPA expects

to issue, effective April 1. This will increase the amount of carbon steel which may be used without NPA authorization from the present five tons a quarter to 30 tons. Aluminum limits will be increased from the present 500 lb to 2000 lb.

Meanwhile, applications for either construction permits or materials which have been turned down by NPA should be refiled for each quarter. A denial does not mean a permanent turn-down—only a deferral. But it must be filed again for each new quarter.

Gasoline Survey in Progress

There will be no gasoline rationing and there apparently will be no serious scarcity, except perhaps scattered spot shortages. Oil companies have reported that the outlook for meeting both defense and civilian needs for gasoline and fuel oil is definitely to the good for the coming months.

Nevertheless, Petroleum Administration for Defense is going ahead with its survey which will provide PAD with a listing of location and other information concerning all storage tanks of 10,000 gallons and over owned by producers, refiners, distributors and major users.

Leasing Rules Postponed

Heavy attacks on the motor carrier leasing regulations have had the effect of forcing a fourth postponement of the effective date. This time the date has been pushed ahead to Feb. 1.

This latest development is the result of 21 carriers taking the leasing order into the United States District Court of Indiana. The court said it would need this additional time to study the briefs submitted. This brings to five the number of courts in which the rules have been protested since the first effective date was named as Aug. 1.

Production Outlook—1952

First quarter production of freight cars has been programmed by NPA at a rate of 8150 a month, including 400 a month for export. However, actual material allocations would be made on a basis of about 7100 a month, the additional units authorized having to come from metal conservation and inventories. A request for additional steel, mostly plate, for the first quarter was turned down by NPA.

Production of freight cars during November was reported as 9824 units, more than double the amount for the previous November. This whittled the order backlog down to less than 130,000, a reduction of 45,000 in 11 months.

Probable first-half figures are also unavailable for building ocean-going ships. But it is revealed that attempt will be made to keep work going on Great Lakes ships at 100 per cent of present levels. Barge building materials will be cut back as much as 75 per cent for first quarter with some increase for the second. This decision has been steadily held to despite pressure by the DTA which was told that more barges, tugboats, and towboats would be authorized if conversion steel could be used.

END

Please Resume Reading Page 37

COMMERCIAL CAR JOURNAL, January, 1952

DID
YOU
KNOW
?



Giant Kangaroos which attain a height of over seven feet are only one inch at birth. The word "Kangaroo" means "I don't know."



MOLD-BLOK
BRAKE LINING

Did you know that years of research and experience in the heavy-duty braking field have gone into Mold-Blok? It is available in a friction range necessary to give you the best possible service. Specify Mold-Blok Brake Blocks for all jobs—old and new—it is a thoroughly dependable product.



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low-cost mileage!

Kelly "know-how" produces a safer tire, too — one that gives longer trouble-free service. And Kellys are built to take more recaps. So your *final* mileage is even greater! But why not get the facts first hand . . .

See what the truckmen themselves say about Kellys...

30 YEARS OF GOOD SERVICE PLUS EXCELLENT MILEAGE!

"For 30 years the Northwestern Tire Company of St. Paul has been servicing our fleet. Their good service and the excellent mileage we get on Kelly tires have kept our operating costs at a minimum. Our experience shows our new Kelly Truc Trac will further cut our costs. Kelly tires—and fine service—have played an important part in helping us give prompt, efficient service."

W. Roger Cammack,
Crescent Creamery Co., St. Paul, Minn.

TRIED OTHERS—ALWAYS CAME BACK TO KELLYS! "Kelly tires and tubes have been on our fleet since 1940. That speaks for itself. Of course we've tried other brands, nearly all of them. That is good business for it keeps us up to date on improvements and competitive prices. It's good for Kelly also, for we always come back to Kelly tires. High-speed, scheduled service demands the best equipment. That's what we have—right down to the tires."

Earle C. Doebener,
P&G Motor Freight, Inc., Manchester, Conn.



*Truc Trac
Delivery*

*Truc Trac
Highway*

*Commercial
Heavy Tread*

*Dual Trac
Special Service*

*Lug Trac
Special Service*



Correct Answers
"Judging Accident Responsibility"

Continued from Page 54

CASE NO. 1

CAUSED BY OUR DRIVER. The statement that he was "almost across" the intersection when the other vehicle hit his rear fender, indicates that our driver had wilfully pulled out into the path of an oncoming vehicle, and then attempted to beat it across the intersection.

Except in the legal aspect, it is unimportant that our driver was nearly across

the intersection! This accident could have been prevented if our driver had waited until the oncoming vehicle had crossed.

CASE NO. 2

CAUSED BY OUR DRIVER. The technique used by our driver to get back onto the pavement was wrong. He should have slowed to less than 10 mph, positioning his right front wheels at least two feet from the edge of the pavement, before turning the front wheels sharply back onto the pavement. This would have precluded skidding along the edge of the pavement.

Of course, first, he should have looked each way before attempting this pull-back.

CASE NO. 3

CAUSED BY OUR DRIVER. Approximately 40 ft. are required to make an emergency stop of a vehicle from 20 mph. Following another vehicle at only 25 ft. is asking for an accident.

A direct cause of this accident is the fact that the brakes were slammed on before the wheel was cut. It is impossible to steer a vehicle with locked brakes. So first, he should have cut the wheel in the desired direction, applied the brakes with a pumping action to permit steering. Thus, he could have avoided striking the vehicle in front of him.

This was definitely caused by our man.

CASE NO. 4

CAUSED BY OUR DRIVER. Contrary to popular belief, much more of the braking action comes from the front wheels than from the rear wheels, due to the weight distribution. Locking the brakes thus always tends to cause the front end to slow more quickly than the back end, often with a resultant skid.

Our driver should have applied his brakes with a pumping action to permit steering. The brakes were obviously in good working condition and their performance was normal and understandable.

CASE NO. 5

CAUSED BY OUR DRIVER. The claim of being blinded by headlights is an admission that the driver was not properly using his eyes. By looking at the right edge of the road well beyond the oncoming vehicle, our driver could have offset the blinding effect of glaring headlights.

When meeting blinding headlights, our driver also should slow down, so that he can retain control of his vehicle. Then, by following the technique of riveting his eyes on a point to the right of the pavement and well beyond the oncoming vehicle, he will have no difficulty in meeting the headlights, yet is able to keep cognizant of the oncoming vehicle out of the "tail of his eye."

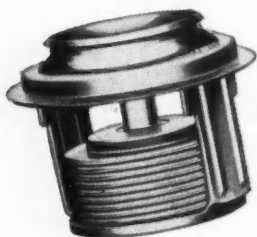
CASE NO. 9

CAUSED BY OUR DRIVER. This is a common occurrence, and our driver is quite sincere in stating the other driver came "out of nowhere" going like a streak. However, the consequences demonstrated that the vehicle was coming.

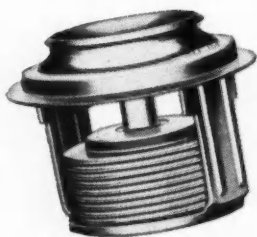
During the approach to the intersection, the other vehicle was obscured from view by our left corner post. The blind spot caused by the door post or corner post makes it imperative to check the deadly blind spot. And this is an explanation why a "full" stop is so vital for safety at required stops—it permits vehicles to emerge from the blind spot.

(TURN TO PAGE 156, PLEASE)

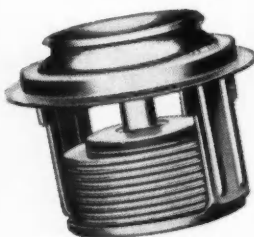
New!—and Necessary!



No. 19 (160°)



No. 319 (170°)



No. 119 (180°)

3 temperature settings for '51-'52 Fords!

For proper fit and top performance, 1951-52 Fords require a special thermostat, different from any previous stat. And for service on these popular cars and trucks, only Thomson offers you a stat in three temperature settings . . . No. 19 for summer use, No. 319 for use with alcohol, No. 119 for use with permanent anti-freeze. For Fords—for cars

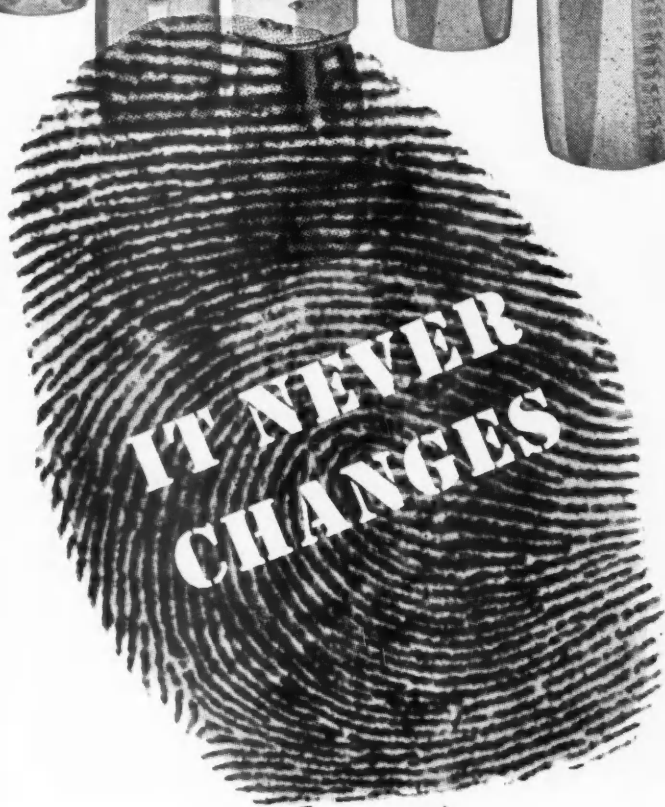
and trucks of all makes, models and sizes—the thermostat name to remember is THOMSON—the most complete line of quality stats available . . . anywhere!

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LP Gas Proves Out As Motor Fuel

Continued from Page 65

without a change in compression ratio fuel consumption increases are generally in the order of 15 to 20 per cent instead of the 27 per cent which BTU contents would indicate. Undoubtedly, this improvement in fuel consumption over that which BTU differences would indicate is due to better combustion of the LP-Gas

because of complete vaporization and better distribution.

Obviously, anything which adversely effects vaporization or fuel distribution in a gasoline engine, such as operating cold, will seriously reduce fuel economy while cold operation on LP-Gas will result in little change in fuel consumption.



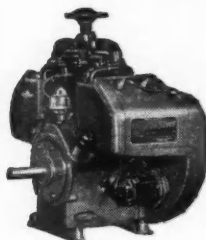
it's COLD inside!

FRUEHAUF AEROVAN Refrigerator Trailer EQUIPPED WITH WISCONSIN-Powered Trail-Aire Unit

Whether your equipment is designed for safe, efficient transportation of Eskimo Pie, frozen fruit, poultry or any other commodity that requires the utmost refrigeration dependability . . . the primary responsibility always falls on the power unit! If the power fails, the payload is a loss and a mess!

Leading builders of refrigerated truck and trailer bodies and refrigeration units have long recognized the heavy-duty dependability of Wisconsin Air-Cooled Engines for this specialized and highly critical form of service. The advantages of air-cooling are, of course, obvious . . . but of equal importance are the Wisconsin heavy-duty design and construction features that match your ton-miles of payload hauling with most H.P. Hours of uniform, completely dependable service from the refrigeration unit.

It is on this basis that we invite your consideration of the practical application of Wisconsin Air-Cooled Engines to your needs. The line includes 4-cycle single cylinder, 2- and 4-cylinder models, in a 3 to 30 hp. range. Let's get together.



The Trail-Aire refrigeration unit used in the Fruehauf Aerovan Trailer illustrated above is powered by a Model VE-4 Wisconsin 4-cylinder, V-type engine which combines great compactness with highly efficient cooling at all temperatures and unfailing power. Power rating: 21.5 hp. at 2400 rpm.



WISCONSIN MOTOR CORPORATION
World's Largest Builders of Heavy-Duty Air-Cooled Engines
MILWAUKEE 46, WISCONSIN

Comparisons of fuel consumption between LP-Gas engines and diesels must be based on very limited service data but it appears that good propane engines will use from 20 to 33 per cent more gallons of fuel than will a good diesel to pull the same loads.

Power Output

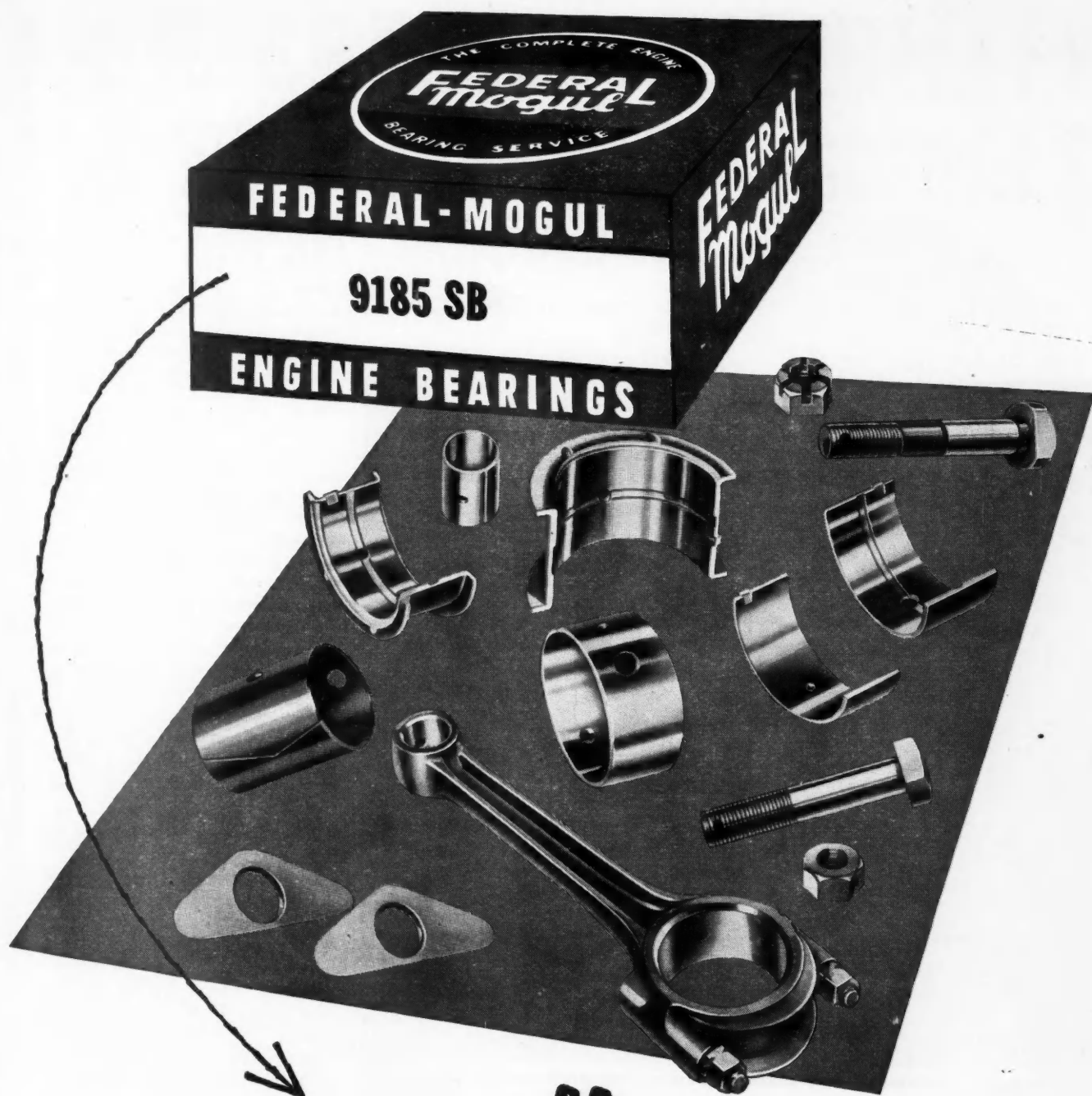
FOR any given engine the power developed is a function of heat release during the combustion process and under ideal conditions varies little with different fuels. Quoting from "The Internal Combustion Engine" by Taylor & Taylor "more or less fuel may be required to give the correct fuel-air ratio, depending on chemical composition, but in all cases the corrected heat of combustion per unit volume of mixture is nearly the same."

When a fuel such as gasoline is used, there will be temperature drop of some 350 F in the mixture temperature to the cylinders due to evaporation of the fuel. Conversely, when a dry gas is used in the same engine with no change in manifold heating, the charge temperature to the cylinders will be about 350 deg higher than when gasoline is used. This temperature difference will account for about a 6 per cent difference in charge density or will cause a 6 per cent power loss in the engine using the gaseous fuel.

If intake manifold heating can be eliminated or the breathing capacity of the intake system improved, this power loss can be more than offset. When fuel distribution is improved by the use of gaseous fuels, there is an additional increase in heat released per unit volume of mixture. If, at the same time the thermal efficiency of the engine is improved by increasing the compression ratio, it is possible to obtain considerably greater power from an engine using LP-Gas than can be obtained from one of the same displacement using displacement gasoline. This is illustrated in Table 1 which shows the characteristics of the same production engines as set up for both fuels.

For normally aspirated four-stroke cycle engines of the same displacement a diesel will have the lowest power output, the gasoline engine next and the high compression LP-Gas engine will develop the highest power output. In diesel engines the thermal efficiency is good but in general combustion efficiency is poor compared to the spark ignition engines. This is probably due to the method of mixing the air and fuel resulting in poor utilization of the air unless excessively rich fuel-air mixtures are used.

(TURN TO PAGE 138, PLEASE)



the answer to *all* of your engine bearing *needs!*

For complete engine bearing service, the Federal-Mogul package is your guide to quality, accuracy and dependability!



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LP Gas as Fuel

Continued from Page 136

Engine Cleanliness and Wear

The effect of fuel on engine cleanliness or wear is largely a function of the completeness of combustion. If the combustion process forms no carbon or ash or combustion is complete that no unburned or partially burned fuel remains in the cylinder, then the fuel

factor in engine deposits is eliminated. Since this is largely a function of the completeness of fuel vaporization, fuel-air proportioning and fuel-air mixing, an engine burning LP-Gas has many advantages. Complete vaporization of the fuel automatically and completely eliminates fuel dilution of the crankcase oil of engines burning LP-Gas. Better fuel distribution and fuel-air mixing as a result of introducing only dry gaseous fuel, results in better combustion in the cylinders which virtually

eliminates carbon deposits from the fuel, and carbon and unburned fuel in the blowby gases. Complete combustion also results in clean exhaust with little or no odor which, in some types of service can be a very important advantage.

The complete absence of liquid fuel going to the cylinders eliminates cylinder wall washing, with the result that cylinder and ring zone lubrication is much better. While this is particularly true during the starting and warmup period there can be little doubt that liquid fuel gets into the combustion chamber of gasoline engines during most of its operation.

It is pretty well agreed that a large part of cylinder wall wear is actually the result of corrosion. If the cylinder walls are protected at all times by a film of lubricating oil there is little opportunity for the water and corrosive gases formed in the combustion process to attack the cylinder walls. If, on the other hand, liquid fuels spill into the cylinders and wash away the protective films of lubricating oil ideal conditions for cylinder wall attack are set up. The corrosion products are themselves mild abrasives which contribute to this problem. The final result is a high rate of wear on cylinder walls and piston rings of engines using liquid fuels.

Service experience has shown that cylinder wear in engines using LP-Gas is generally in the range of one half that of the same engine burning gasoline. In light duty stop-and-start types of operation there is every reason to believe that the rate of wear may be much less than one half the gasoline wear rate. In fact, we have received reports indicating wear rates on LP-Gas engines in this type service as low as 1/10 the rate with gasoline.

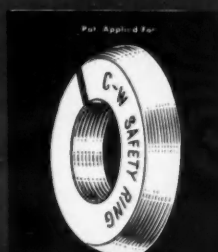
Although reliable service data on the effect of LP-Gas on engine cleanliness and wear is very limited, there can be little doubt that there is significant improvement. In an attempt to substantiate this statement the following laboratory data were obtained using the standard CRC-L-4 test procedure. In these tests four oils were run with

(TURN TO PAGE 140, PLEASE)

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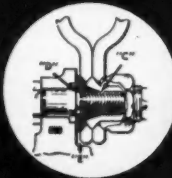
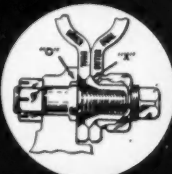
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BEFORE

Outer deal is not supported at "X" as "B" and is kept tight only as it is pressed against the inner deal by the outer nut.

AFTER

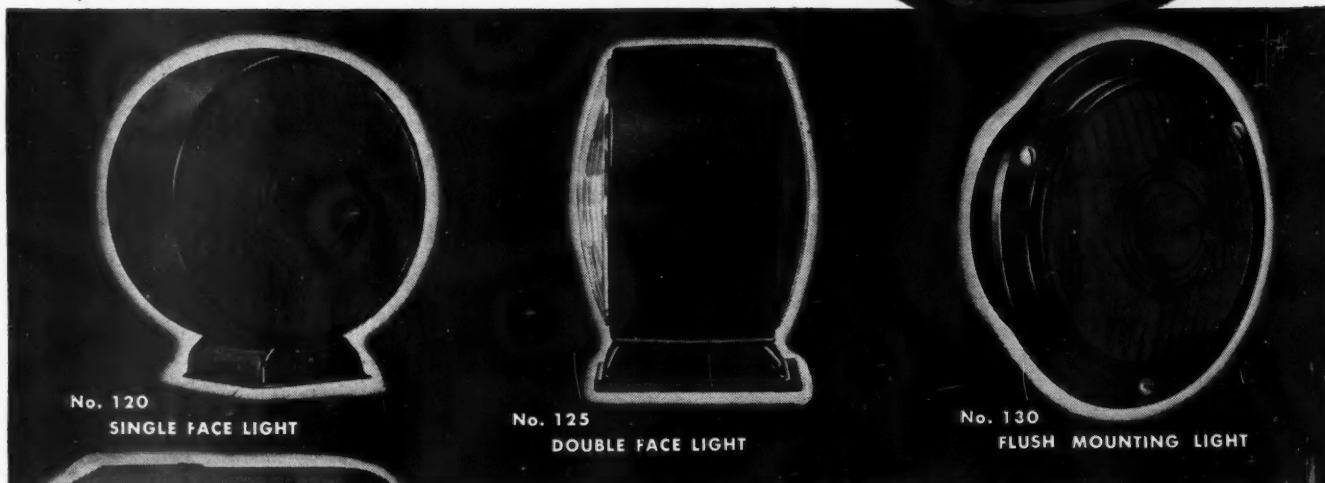
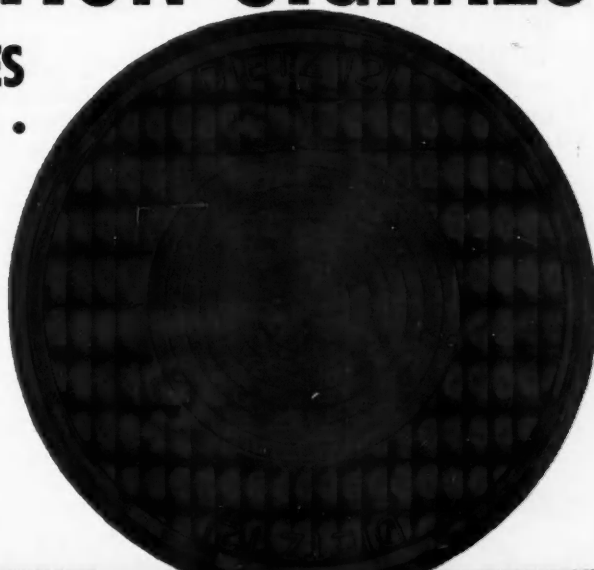
C-W Safety Rings (in red) support inner deal on both sides. Load is distributed at two points, "C" and "D," which lessens strain on studs. Note air space "E" which separates hub from wheel for easier running.



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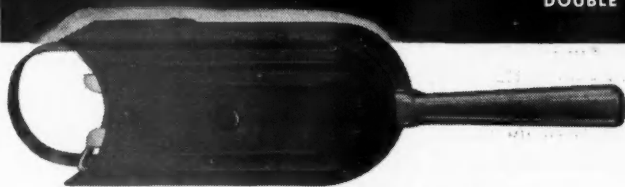
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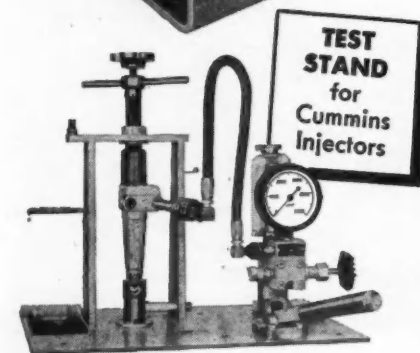
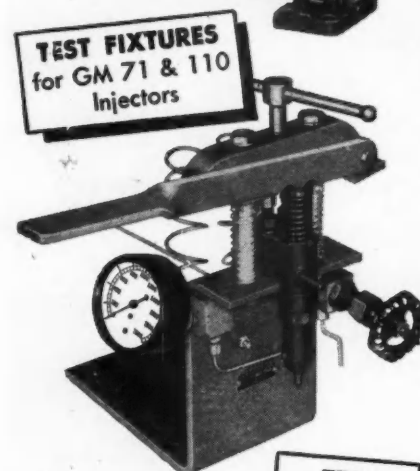
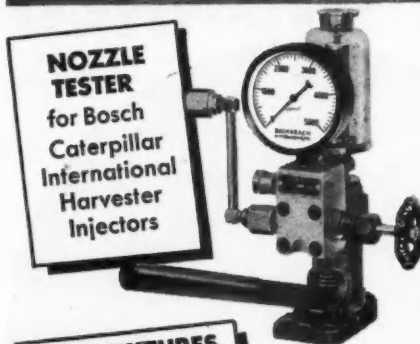
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LP Gas as Fuel

Continued from Page 138

the standard L-4 gasoline and the results compared with the same four oils when run under identical conditions except that commercial propane was used as the fuel. Table 2 shows the results of these tests.

It is obvious that under these conditions there is no significant difference in the results obtained with the two fuels. However, it must be remembered that the L-4 test is run under high speed, high temperature conditions and therefore, fuel dilution of the crankcase oil is virtually impossible. These same operating conditions are conducive to good fuel distribution and consequently good combustion with the formation of little unburned fuel residues. The used oil analysis data from these tests do show somewhat poorer oil condition for the tests run with gasoline as indicated by Table 3.

A further comparison of the effect of fuel on engine cleanliness was made in the laboratory under conditions simulating stop and start driving which aggravate sludge formation and oil ring plugging. Under these conditions the use of propane as fuel resulted in a marked improvement over the condition of the same engine operated under identical conditions using gasoline as the fuel. This is indicated by the data shown in Table 4. It is worthy of note that the two tests run with propane and shown in this table gave much cleaner engines than any oil-gasoline combinations tested by this procedure to this time. In the tests where propane was used as the fuel the oil rings were practically free of sludge and sludge deposits on cover pans and in the crankcase oil pan were reduced substantially. An examination of the engine parts reveals this fact even more than do the engine ratings.

END

Please Resume Reading Page 66



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The Story of Quality Finishes is a pamphlet which takes the reader on a pictorial trip through a paint factory. The reader sees the paint being made and follows the camera through each process. Then, there is a description of paint types and finally a two-page catalog of paints manufactured by McDougall-Butler Co., Inc., Buffalo 14, N. Y.

Lathe attachment catalog: More than 160 different attachments and accessories for lathes, drill presses and shapers are illustrated in a new 35-page, 8½ in. x 11 in. Catalog No. 5102, prepared by South Bend Lathe Works, South Bend, Ind.

Hydraulic jacks data and specifications are offered in a new bulletin just issued by Templeton, Kenly & Co., Chicago, Ill. This 8-page letter-file size folder, known as Hydraulic 51-R, contains photographs, detail drawings and tabulated data on hydraulic equipment in capacities of from 10 to 100 tons.

How to Convert to LP-Gas Carburetion: Implement manufacturers, tractor and implement dealers, LP-Gas distributors and dealers, truck and bus fleet operators and others vitally concerned with the problems of converting automotive and stationary engines to LP-Gas fuel (butane-propane), can find the answers in this newly published book by T. E. Wisby, director of training for the National LP-Gas Institute, Tulsa, Okla. Mr. Wisby developed this complete 448-page text because of the rapid trend toward the use of LP-Gas as an engine fuel. It is published by Ross Martin Co., Tulsa, Okla.

Among the important subjects treated are: design and operation of internal combustion engines; power obtained from fuel in various ratios; various types of battery and magneto ignition; the function and regulation of cooling systems; proper lubrication; parts and functions of LP-Gas Carburetion systems and the various conversion problems involved; how to test the several devices involved in satisfactory conversions; engine specifications and data; proper installation of both vapor and liquid-withdrawal systems; trouble shooting various types of equipment; NFPA and state regulations relating to LP-Gas carburetion equipment and its use, and the economics, sales and general service problems involved.

"What Do GM Diesels Do?" describes the many uses Diesel engines fulfill in our modern economy. It has just been reprinted by Detroit Diesel Engine Div. of General Motors. This entertaining and instructive booklet is written in rhyme and is illustrated by drawings of locomotives, buses, boats, power shovels, saw mills and many other pieces of essential equipment that are today commonly powered by Diesel engines.

"The Inside Story of Towmotor" has been published by Towmotor Corp., Cleveland, Ohio, for the purpose of providing basic product information on its line of fork lift trucks. It is a non-technical analysis of the construction features of Towmotor equipment, with a simple explanation of how these features contribute to handling of materials.

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Heat Simplifies Spray Painting

Continued from Page 63

one third so that less thinner is required. This enables the painter to lay a greater amount of solids over the surface with fewer strokes of the gun. In addition it permits him to flow the finish on more smoothly without the danger of sagging and running. Solvent loss is reduced appreciably due to the better

consistency of the paint and due also to the lower pressures necessary. Thus, less paint is wasted and what is very important in small shop usage, spray fumes are reduced to the point where respirators are usually unnecessary.

Another advantage of hot spray arises with the reduction of required solvent.

Since the particles of paint that strike the surface have a greater ratio of solids to solvents, there is less shrinkage in the finish as it hardens. As a result surface imperfections are better covered, and the entire finish is smoother. The resultant glass-like film structure appears to have greater depth and improved weather resistance.

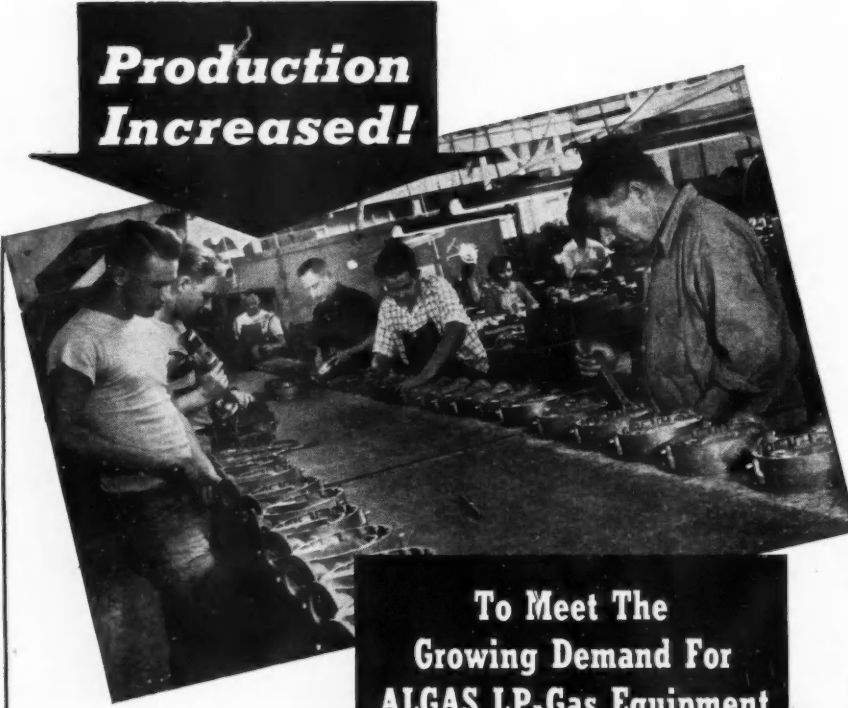
One of the chief advantages of heating the paint in this manner is the fact that it is possible to use far less air for atomization. Where pressures of 60 to 70 lb are required for cold application of synthetic enamels, as little as 25 lb at the gun is sufficient for efficient spraying of heated enamels. This results in less overspray as well as a thicker coat which can be applied without danger of sagging, running and orange peel. With reduced pressures a larger opening at the gun nozzle is possible so that more material can be applied during the same length of time. As a result painting time can often be cut in half with enamels, and in the case of lacquers often two coats of hot spray will provide a surface corresponding to that obtained with five or six coats applied under cold methods.

There is actually little that varies in spraying techniques between hot and cold methods. In hot spraying it is not necessary to mist coat since the painter can apply a good wet full coat without the tendency to sag. Most of the synthetics can be sprayed as packaged, but if thinning is required at all, a slower evaporating solvent is used. Standard spray guns are used and standard nozzles are satisfactory, the only change necessary being a larger opening of the aperture.

For fleet use and high volume work pressure feed systems should be considered. While gun cups are entirely satisfactory, pressure systems will cut spraying time by approximately one third. Only where colors must be changed often is the gun cup considered better.

Best spraying results can be obtained by applying either a full, wet single coat, or by cross spray which involves spraying a panel horizontally with a medium wet coat followed with medium wet coat applied vertically. Drying time will be speeded up, though for most applications the change may not mean much to the painter. The out-of-dust, for example, does not change much. Actually the surface will dry to an out-of-dust in approximately 10 to 15 min. Drying to an out-of-tack, that is to the point where a hand may be wiped across the film, is usually much quicker.


(TURN TO PAGE 148, PLEASE)



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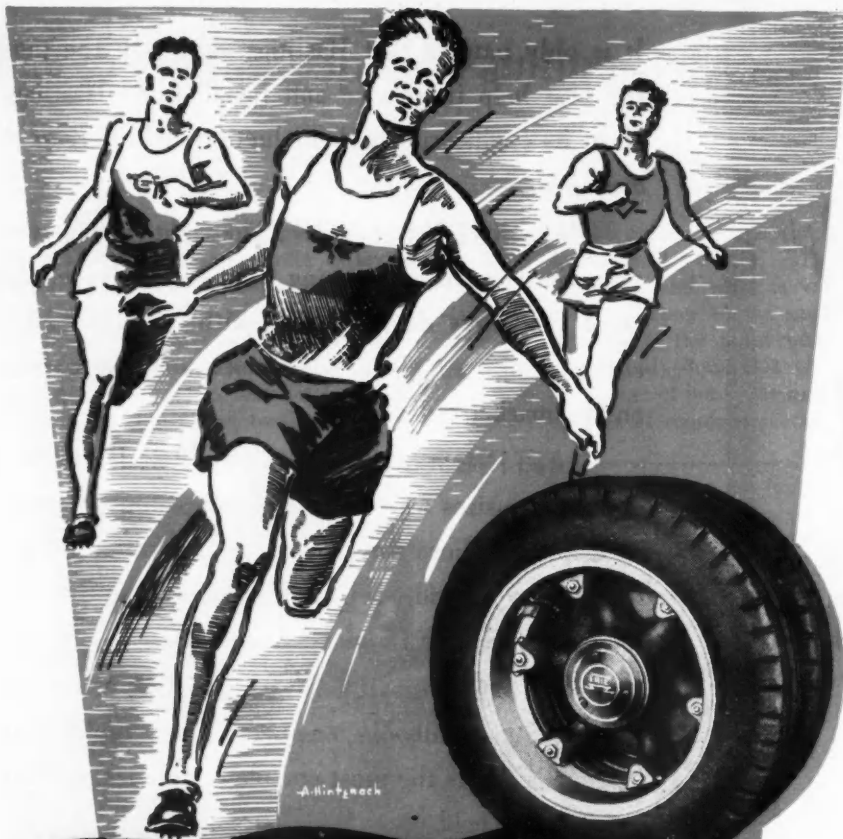
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152

Hot Spray Painting

Continued from Page 146

This period may consume around 30 minutes and of course varies with the thickness of the film. Through hardness is accelerated with hot spray application. Enamels will dry hard in less than 4 hours, quicker with light colors. And finally curing time is extended through the use of hot spray, though complete curing with either method takes from four to six weeks.

There are presently at least five methods used to heat the paint during the spraying process. One method involves use of an electrically heated cup which employs a double cup with a heating element for warming the inside cup. Another manufacturer has developed an electric hot plate to which is clamped a can of paint. A timer controls the heat to the needs of the painter. Another product comprises an open vessel with a built-in thermostatically controlled heating element. With this unit the paint can be heated directly in the vessel or it can be heated in water using the double boiler principle.

For high production work another heating unit in the form of a heat exchanger is attached to the spray gun at the fluid inlet, or inserted in the line a few feet from the gun. The heating medium can be low pressure steam, 5 to 10-lb gage or superheated steam. A light weight rubber hose is used to conduct the steam from the supply to and from the unit. There are other heating elements on the market, and several on company drawing boards. Those available today are approved by underwriters and considered safe and reliable.

END

Please Resume Reading Page 64

Graduation Day



For completing a course for supervisory personnel at the Autocar Co., Ardmore, Pa., these men received certificates. Frank Harkins (left) a time-study analyst, and John Pili (right) assistant general foreman in Autocar's upper plant, admire the certificates held by Norman H. Yoder, an assistant foreman.

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GET LONGER ENGINE LIFE, LOWER MAINTENANCE COSTS WITH THIS NEW AND BETTER HEAVY-DUTY MOTOR OIL

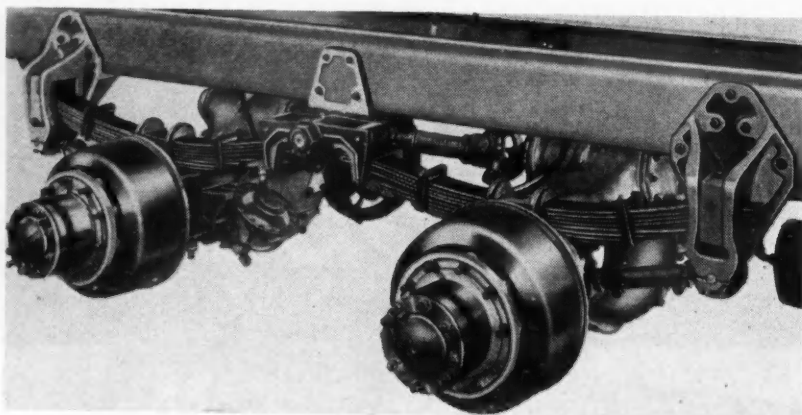
• Since the introduction of STANOLUBE HD Motor Oil in 1942, Standard has led the way in the development of additive-containing lubricants for automotive and diesel engines. New and better STANOLUBE HD-M Motor Oil is tailored to meet the demands of today's increased severity of operating conditions. It's a tougher oil for tougher jobs! Here's what it offers to operators of heavy-duty equipment:

LONGER ENGINE LIFE results from STANOLUBE HD-M's improved detergent-dispersant action. Engines stay clean under the tougher operating conditions caused by adverse fuel quality, higher running temperatures, and prolonged periods of severe, heavy-duty service. Freedom from deposits means less engine wear. Less engine wear means longer engine life.

LOWER MAINTENANCE COSTS result from STANOLUBE HD-M's greater oxidation stability. It helps keep pistons, rings, and valve stems free from varnish-like deposits and provides protective films of oil in the face of high operating temperatures. Less wear on engine parts, less time in the shop, and longer periods between overhauls mean lower maintenance costs.

Your nearby Standard Oil service-supply center stocks STANOLUBE HD-M Motor Oil for fast *local* delivery. This service-supply center is also headquarters for your Standard Oil lubrication specialist. Call for his services today. He can help you obtain maximum lubrication benefits with STANOLUBE HD-M . . . a tougher oil for tougher jobs! Or write: Standard Oil Company (Indiana), 910 South Michigan Ave., Chicago 80, Illinois.

COMPANY (INDIANA)



LEFT. Section depth of frame varies with strength requirements. Cross members are aluminum. Brackets are bolted to frame. **RIGHT.** Axle housings are cast aluminum as is differential carrier. Axle housings, hubs, brake shoes, spiders, etc., results in weight saving of 1200 lb.

White Freightliner Uses Ton of Aluminum

By Thomas D. Taylor
Freightliner Corp. General Manager

LISTEN to Your Compressor...
too frequent running means trouble!

**exclusive
DOMED PISTONS
and cylinders...
CUT RUNNING TIME!**

A superior engineering point of difference is apparent when you look at Champion's Aero-Dynamic pistons and cylinders. They are domed to eliminate turbulence by funneling compressed air from the extreme top of the cylinder. This keeps air and cylinders cooler, reduces running time and insures greater economy. This superior engineering design—combined with such other Aero-Dynamic features as wear-resisting plate valves, automotive type connecting rods and bearings, and separate crankthrows for each connecting rod—is the reason for Champion's lower running time and longer compressor life.

Listen to your compressor—if it runs nearly all the time, you'll be needing a new compressor soon. See your Champion Jobber or write today for the new Champion Catalog.

**CHAMPION PNEUMATIC MACHINERY CO.,
829 N. Pleasant St., Princeton, Illinois.**

CHAMPION
AIR COMPRESSORS

B-5777OC

CAR WASHERS • AIR HOSE REELS • SERVICE TOWERS • CEILING SWIVELS

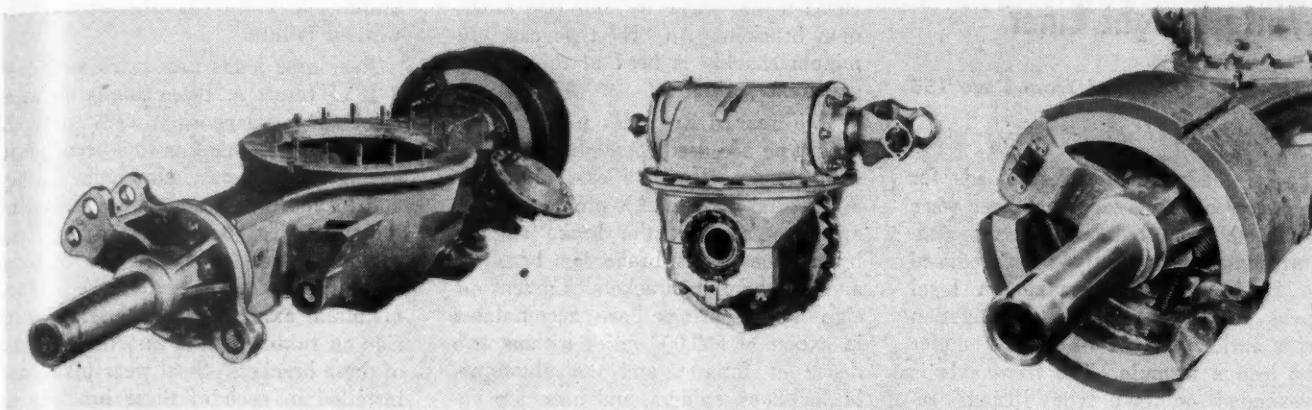
THE White-Freightliner, designed and built by the Freightliner Corp. of Portland, Ore., and marketed by the White Motor Co. of Cleveland, Ohio, is the result of more than eleven years of planning, engineering, and operational road testing. At the time it was introduced to the market early this year, it was estimated that over three hundred million miles of operational experience had been accumulated, and many individual vehicles had passed the one million mile mark.

Outstanding among the unusual features of the White-Freightliner is the extensive use of light weight metals, particularly aluminum, which makes possible additional weight load capacity.

The COE heavy duty diesel powered dual drive chassis is designed for maximum allowable gross vehicle weight operation on Western highways. It is designed to carry a 22 ft body and tow a 28 ft trailer. 2014 lbs of aluminum castings, extrusions and sheet are used in the construction of the cab and chassis.

The frame is formed of $\frac{1}{4}$ in. heat treated alloy steel rails, 333 $\frac{1}{4}$ in. long. By forming rather than extruding it is possible to vary the section depth to obtain required strength where needed without being penalized for extra weight of metal where it is not needed. The frame section varies from 8 $\frac{5}{8}$ in. at the front to 10 $\frac{3}{8}$ in. in the center, and 9 in. at the rear. All frame cross members are aluminum, with the single exception of the high-tensile steel cross member which carries the disc-type emergency brake. Four cross members are used in the frame structure.

All frame cross members and frame brackets are bolted to the frame. This serves a two-fold purpose. It facilitates replacing damaged parts and provides



a tighter fit than hot rivets, especially when used with aluminum. Bolt sizes are standardized to allow service operations on the frame with a minimum of hand tools. Additional cross bracing is obtained from the various components. The front bumper, which is bolted to the front spring hangers, also serves as a cross member. Side forces from the front wheels are thereby transmitted to the bumper.

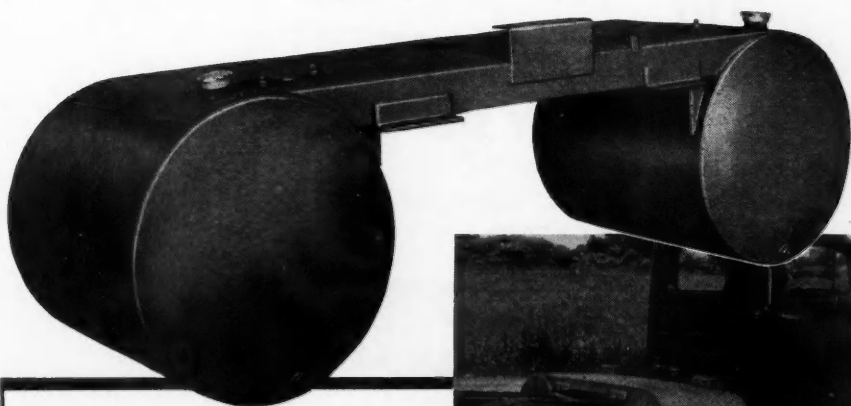
Diesel engines (of 150 to 300 hp) are installed on a three-point suspension, using a cast aluminum trunnion mounting on the front and cast aluminum brackets on the rear. These engine mounting brackets are bolted to the frame.

The cab structure is of a semi-monocoque design, using an aluminum skin over aluminum structural members. The cab is 70 in. long, 86 in. wide, and the top of the cab is 107 in. above the ground when the chassis is equipped with 10:00x22 tires. The cab itself is a shell which is supported by fabricated aluminum decks, bolted to the frame. The cab shell is bolted to the decks and can be easily removed if necessary to repair major accident damage. The engine is covered by a three-section double constructed and insulated aluminum hood.

The standard front axle is a conventional forged beam axle, rated at 14,000 lb capacity. Specially designed cast aluminum hubs are used as standard equipment and they have proved highly successful during the many years of test operation. By allowing an ample section of metal around the outer periphery of the bearing cups, it has been found that cups would not loosen and both hubs and bearings could be expected to give excellent service life. Although front axle loads seldom exceed 10,000 lb, additional front axle capacity has been found to give longer axle life, particularly in sections of the country where spring thaws create large chuck holes in the highway and

(TURN TO NEXT PAGE, PLEASE)

"Cylsad" TRADE-MARK the truly safe **SADDLE TANK** for your trucks



More crash resistant as
proved many times by
severe crash tests.

Think what the following features can mean to you not only in safety but also in lower costs:

1. Ball check safety valve.
2. Increased fusible element area for additional safety.
3. Hose connection mounting bracket.
4. An evenly crowned, extended, safety tread top.
5. Furnished complete with diesel connections for cross-over line, gauge ports, and return line connection.
6. Also with spring and pad mountings for isolating the tank from excessive vibration.
7. Double checked for leaks with the famous G. E. Electronic Tester.
8. Available at prices competitive with the ordinary, old-fashioned saddle tank.

In addition to these features the "Cylsad" meets proposed specifications and tests recommended to I.C.C. governing the manufacture of automotive fuel tanks. May we send you complete information and prices?

THE LINTERN-JOLENE SALES CORPORATION
29-2 RIVERSIDE DRIVE • BEREA, OHIO

White Freight Liner

Continued from Page 153

subject the axles to impact loads far in excess of those for which they were designed. The bumper to axle measurement has recently been reduced to 28 in. to permit maximum legal gross vehicle weights in combination with various makes of trailers under the bridge formula. The front axle is suspended on leaf type springs se-

cured to the frame by four cast aluminum brackets. An "H" type cast aluminum shackle is used at the rear of the front spring.

Two rear drive axles of the worm gear type are used. Axle housings are cast aluminum with a cast aluminum differential carrier. Aluminum castings are also used in the brake spiders, brake shoes, hubs, brake cam brackets, and air chamber brackets. Current design axle housings have accumulated in excess of 500,000 miles without evidence of fatigue, and the aluminum brake shoes, spiders, and hubs are op-

erating a million miles consistently without failure.

Rear axle loads are distributed over 8 ft of frame at three points on each side. The suspension uses four 2-stage chrome-vanadium shot-peened leaf springs. Four cast aluminum spring and torque arm brackets are bolted to the frame. Torque arms, running from these brackets on the frame directly to the axle housing under the spring, maintain axle position. Spring ends ride on rubber blocks installed in each of these brackets. Steel wear plates are installed in each of these brackets to prevent wearing of the aluminum casting. Axle loads are equalized by means of what we call an equalizer, which is actually a small walking beam mounted on a two-inch diameter cross shaft which is secured to the frame by cast aluminum brackets. The design is such that the point of maximum wear occurs at the cast alloy steel wear shoe on the equalizer. This part costs approximately \$2.50 and takes but ten minutes to install. Its normal service life is 150,000 miles.

The total weight of the dual drive axle assembly is 3369 lb, including springs and all attaching parts. The complete axle, with all internal parts and hubs and drums, weigh 1170 lb, and the complete suspension group weighs 1029 lb. The extensive use of aluminum in the axle housings, hubs, brake shoes, spiders, frame brackets, and other miscellaneous parts, results in an estimated weight saving of 1200 lb.

All springs are formed of shoe-peened chrome-vanadium steel. Since the weight of a spring is known to vary inversely as the square of the stress, spring weights have been minimized by using high tensile steel. Operating cost records have proved that in the Western states, where loads are greater and service is more severe because of high speeds and winding mountain roads, the higher initial cost of chrome-vanadium steel has been easily justified by longer life.



Aluminum sheet is used predominantly in cab construction. Assemblies are bolted together to facilitate maintenance.

Since 1882 it's
been **(E)berHARDWARE**
for "RUGGED WEAR"

When the first **BUGGY STEP** was cast back in the 80's it was the "pride of the plant"—the last word in practical design, affording long serviceability.



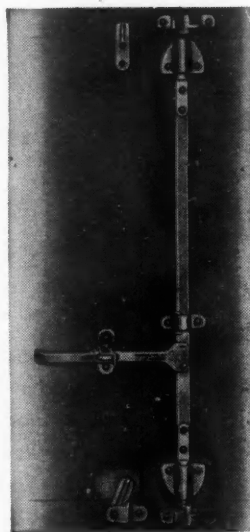
and Today

the gratifying results of Eberhard's long consistent program of product development and improvement is evidenced on truck bodies everywhere.

The Eber-"Grip"-Hard door lock shown here is just one popular service-proved item in the **(E)** leading line of truck body fittings.

It pleases us to know that truck men, fleet operators and body builders think of **(E)berHARDWARE** for "RUGGED WEAR".

Write on your letterhead for a copy of the latest catalog.



EBERHARD Long Run
TRUCK BODY FITTINGS **(E)**

EBERHARD MANUFACTURING CO.

Division of the Eastern Malleable Iron Co.

EVARTS AVENUE

CLEVELAND, OHIO

VAN NORMAN

is building

All these Machines NOW!

...to keep cars, trucks and buses on the road for the Defense Effort

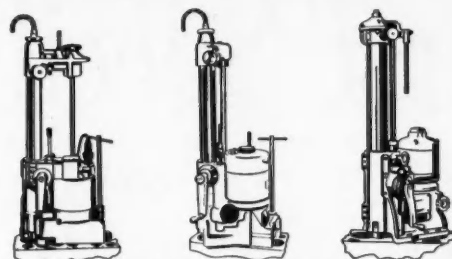


Per-Fect-O Boring Bars ... the bars with the 4 "Cat's Paws" ... are just one of the VN machine-lines now available ... 4 models.

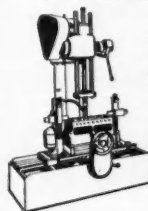
One of the largest and most modern U. S. precision-machine-tool plants, Van Norman's 400,000 square feet of floor space is rolling out automotive service equipment as never before ... *all the machines shown on this page* ... to keep cars, trucks and diesels in continuous operation. So see your jobber ... or write Van Norman Co., Springfield 7, Mass.

"Get it From Your Jobber"

"It pays to Van Normanize"

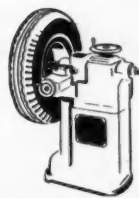


Van Norman Per-Fect-O Boring Bars bore the cylinders ... to factory-accuracy ... in one quick cut per cylinder.

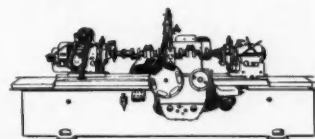
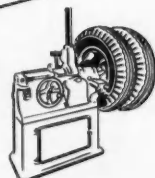
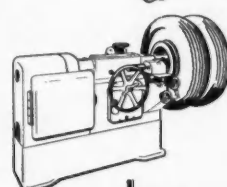
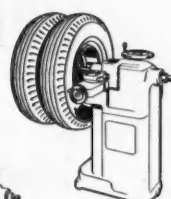


Van Norman No. 200 Wet Honer duplicates the cylinder-wall finishes of the engine-builders.

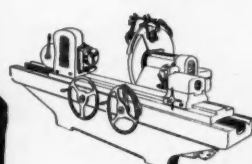
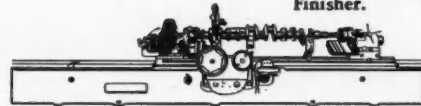
Van Norman No. 232 "Pin Shop" fits piston pins to pistons and rods ... also re-conditions con-rod forgings.



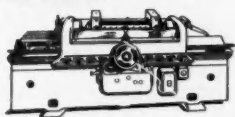
Van Norman Brake Lathes recondition all brake drums, from the smallest car drums, to the largest bus, truck, and airplane drums.



Van Norman Crankshaft Regrinders take all shafts. And each model may be equipped with the Van-O-Lite Finisher.

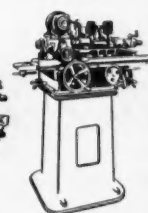
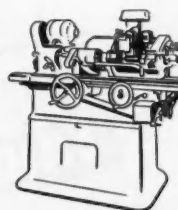


Van Norman No. 500-B Valve Regrinder refaces valves...also grinds valve-stems, push-rods, rocker-arms, and con-rod caps.



Van Norman No. 565 Cylinder Head-Block Top Grinder

Van Norman No. 444 Rotary Surface Grinder re-surfaces clutch plates, and the clutch sides of fly-wheels, and many other grinding operations.



Van Norman Cam Piston Grinders grind all pistons to factory accuracy.

first Specify TANDEMS

then Specify

HENDRICKSON TANDEM

Follow the Leader!



● This Diamond T Model 720 six-wheeler ready-mix unit is equipped with Hendrickson-Eaton Tandem Axle Suspension.



There is a

HENDRICKSON TANDEM

*designed to do
your job best*

HENDRICKSON MOTOR TRUCK COMPANY

8001 West 47th Street • Lyons (Chicago Suburb) Illinois

156

Correct Answers

"Judging Accident Responsibility"

Continued from Page 134

CASE NO. 10

CAUSED BY OUR DRIVER. The technique of turning right was faulty on the part of our driver. The fact that the other vehicle attempted to pass on the right indicates that our vehicle either swerved out or started the turn from the wrong lane. This results from attempting to turn at a speed not commensurate with the angle of the corner.

It is much easier to execute a sharp right turn at 3 or 4 mph, than at 10 or 15. To attempt a right corner at 20 mph, requires a considerably larger arc than that afforded by the usual right-angled corner. Had our driver started his turn at a much slower speed, he could have "crowded" the right curb, discouraging anyone from passing on the right.

CASE NO. 12

CAUSED BY OUR DRIVER. Driver should realize that the door of any vehicle parked along the road is apt to be swung open in his path. Therefore, he should learn to drive at a distance, where practicable, at least 4 ft. from the parked cars, or just beyond the arc of the swing of a given door.

Our driver could have prevented this type of accident by staying away from parked cars.

CASE NO. 13

CAUSED BY OUR DRIVER. The fact that the drunkometer test cleared the driver, insofar as legal degree of intoxication is concerned, does not bear too heavily on this case. It is possible that the limited amount of alcohol, in this case, might have impaired the driving ability of this individual.

But far more important is this: The technique employed for passing was obviously faulty on the part of our driver. The vehicle should have pulled into the passing lane well in advance of the actual passing, to avoid this circumstance.

The fact that the owner of the other vehicle slowed down, causing us to run into him, or to nick him as we went around, shows that we attempted our passing procedure much too late, thereby contributing to the accident. The passing movement was delayed until, or initiated when, our vehicle was too near the rear of the vehicle ahead.

CASE NO. 14

CAUSED BY OUR DRIVER. Had our driver followed the large truck at a distance of 70 to 100 ft., in lieu of 10 ft., his range of vision would have been sufficiently extended to eliminate the necessity for pulling out into the path of an oncoming vehicle; since it would have been seen well in advance.

COMMERCIAL CAR JOURNAL, January, 1952

fit !!

Muffler installation troubles?

... switch to AP mufflers and pipes —they're made to fit—save your time and temper.

THE AP PARTS CORPORATION
1188 AP Building • TOLEDO 1, OHIO
Manufacturers of: MUFFLERS • PIPES • MIRACLE POWER • dgf 123



Mufflers

... Saves 936 Man-Hours

Continued from Page 76

readily available. Also, it usually is slow and costly, unless the painter is a part-time man. It is more flexible and adaptable to emergencies. The same men can make repairs, if the signs become torn or otherwise damaged.

Some forms of the stencil method have been in use for many years. There are several methods. All use a master cutout or blockout for the lettering but the application of paint varies—brushes, rollers, spray guns, squeegees. All forms have their boosters.

However, the silk screen process is gaining adherents rapidly. At New Orleans Public Service, for example, the silk screen has replaced hand painting with great benefit to this property.

960 Man-Hours vs 24

WHEREAS it requires 960 man-hours to hand-letter 80 destination signs of 24 lines each—which is good production for that method—the same job now can be done in 24 hours. To New Orleans this means a saving of 936 man-hours.

Of course, it takes time to cut the original stencils but, as skill and facility are acquired, this can be done in little more than the time required to hand letter one sign—less if they can be traced.

The basic tools and equipment are simple and relatively inexpensive—screens, a long table, a squeegee, paint, and some drying racks.

The method of placing the lettering on the screen varies all the way from using ordinary diluted mucilage to special transparent films. The former is applied with a brush and the latter in the form of cut out letters—either in positive (black on white) or in reverse (white on black)—which are glued to the screen with an adhesive.

The film process seems best because it is more durable, provides sharper lettering, and is faster.

Basic Equipment

THE BASIC piece of equipment is a wood frame. This can be anything from 1x2-in. stock to 2x4-in., depending on its length. The length, usually, is the length of the destination sign, with about a foot or 18 in. extra length on both ends to hold a pool of the paint being used. Width also depends on the width of the destination sign, plus two or three inches. The frame corners should be mortised and reinforced with angle iron.

The squeegee should be the width of the destination sign. It can be obtained from almost any large paint supply house. The paint can be anything from a flat wall paint to any of the lacquers. Multi-color combinations are possible.

The silk screen also is obtained from the paint supply house. A No. 12 screen will give very good sharpness of outline. It is tacked onto the wood frame, in about the same manner as a fly screen is tacked on a screen door frame.

The stencil can be prepared by tracing or drawing the
(TURN TO PAGE 162, PLEASE)

NEW POWER

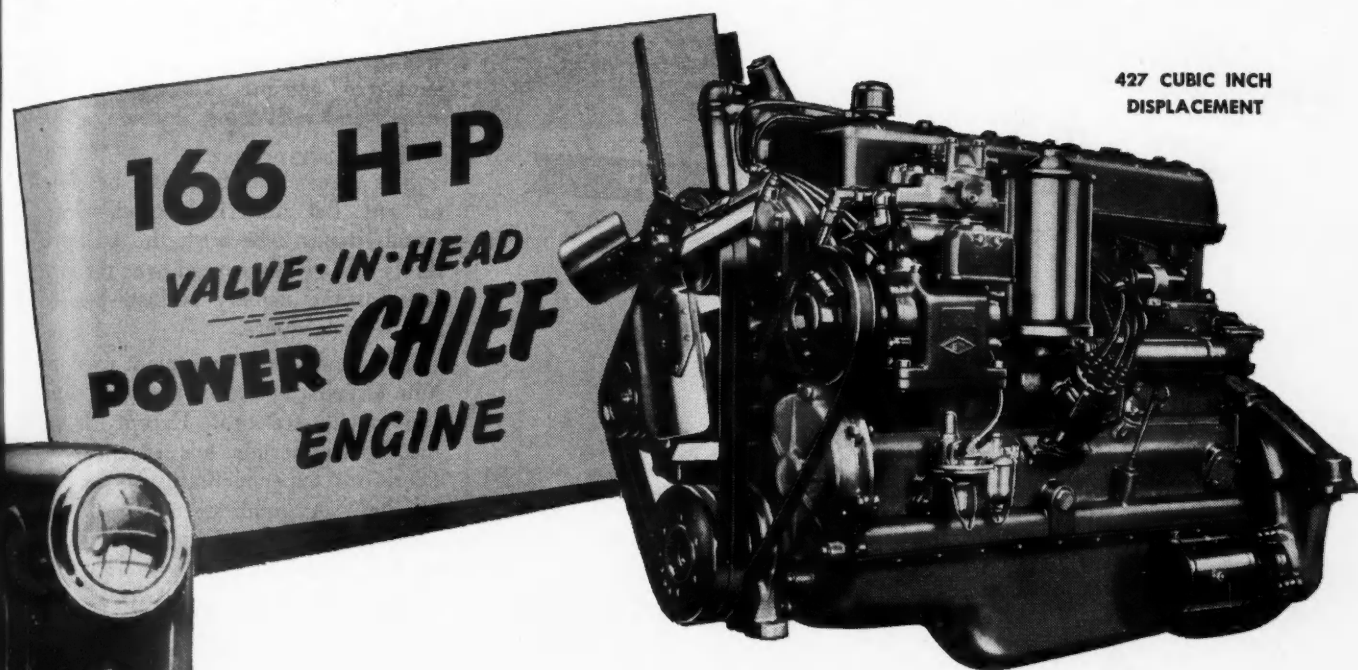
The Federal 4400 Series StyleLiner



GENUINE DRIVER COMFORT—VISIBILITY—ACCESSIBILITY

R SENSATION!

er for Heavy Duty Tractor-Trailer Service



Never before has there been a tractor with so much load-power and go-power and with so many features as the new Federal 4400 series. Here is a star performer for any job with plenty of power to prove it . . . a minimum of chassis weight to assure you bigger payloads, lower operating costs and more profits . Tractor-trailer rating 50,000 lbs. For the best in modern transportation equipment see your nearest Federal dealer.

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More than 41 models available in light, medium and heavy duty units . . . wide selection tonnage capacities, engines and wheelbases. Write factory for descriptive literature.

Y OVER 100 BIG FEATURES

FEDERAL TRUCKS

SINCE 1910

GASOLINE • 1½ to 35 Ton • DIESEL

... Saves 936 Man-Hours

Continued from Page 159

original on the screen with a litho pencil or fine brush and india ink. If the lettering is to be white, then the letters are filled in, so the paint won't seep through, and the background left open.

The frame should be fastened to the work table. The usual procedure is to use metal hinges with removable pins. Having a firm mounting in-

sures accurate positioning of the sign and good color register, if more than one color is desired.

The paint is poured onto the screen at one of the ends, where extra length of the stencil has been provided. Then, depending on size, one or two men take the squeegee and, with a firm pressing action, spread the paint over the surface of the stencil. The paint will not pass through the blocked-in areas but will squeeze through the open screen onto the cloth underneath.

Usually, one pass over the stencil

is all that is needed. When the pass has been completed, the screen is raised and the finished sign removed. It is advisable to support the screen with a block, cord or a long spring. This keeps the stencil raised and permits insertion of the next length of cloth for the next sign.

That, briefly, is about all that there is to the job. The paint supplier can answer any questions that may come up.

The screens may be removed by removing the hinge pins, and stored for future use. The life of a stencil is quite long—depending on how it was prepared. Changes can be made simply by washing off any part of the stencil and relettering any new wording.

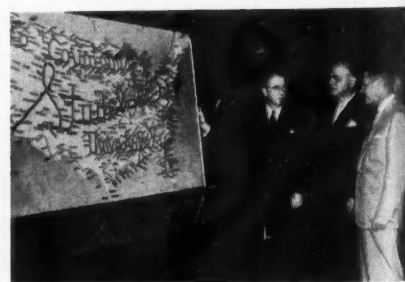
Silk screen painting can be done on any flat material—wood, cloth, metal, paper. Because the paint is thinly and evenly spread over the surface, drying usually is fast—especially with lacquers.

The production equipment used by New Orleans is shown in the accompanying illustrations. Except for the silk, the materials are inexpensive. Therefore, experimentation is recommended. A good start can be on route or block numbers, where only small stencils are required. The experiment should pay good dividends.

END

Please Resume Reading Page 78

"Landwriting" Concluded



The formal end of a 68,000 mi., 3 year "landwriting" tour of the United States which was conducted by driver Harry Hartz in a half-ton truck, has been declared by the sponsors. As shown, the route traveled by Mr. Hartz, when placed on an outline map of the United States reads "Be Courteous, Studebaker, Drive Safely." Viewing the pylon are (L. to R.) K. B. Elliott, Studebaker vice president in charge of sales; Ned H. Dearborn, president of the National Safety Council, and M. R. Darlington, Jr., managing director of the Inter-Industry Highway Safety Committee.

AGAIN-

National
GARAGE TOOLS

LEADS

THE FIELD

As Easy
As Changing
A Tire . . .



PULL or REPLACE CYLINDER SLEEVES

with the

NEW National
GARAGE TOOLS

**HYDRAULIC
PULLER**

One man, working from the top of the block only, can pull or replace a set of cylinder sleeves in 15 minutes without hard labor. Two hydraulic jacks, pumped by one handle exerts a smooth, even pressure that quickly breaks loose or inserts the stubbornest sleeve. Sleeve capacity, 3 inches I.D. to 4 3/4 inches O.D. Adaptable to many other pulling and pressing jobs. Write for details today—the new patented National Hydraulic Puller gives you convenience, speed and rugged, guaranteed construction at an amazingly low cost.

TOUGH TOOLS

FOR TOUGH JOBS

**NATIONAL
MACHINE AND TOOL CO., INC.**
JACKSON, MICHIGAN
U. S. A.

Perfect Engine Operating Temperature on
scorching desert...thru subzero mountains-

KYSOR delivers for **P·I·E!**

"KYSOR Automatic Shutters
have been a major contribution
to our success in obtaining
maximum utilization of our
power equipment."

G. L. Springer

DIRECTOR—TRANSPORTATION and PROPERTIES
PACIFIC INTERMOUNTAIN EXPRESS

Giant P.I.E. Diesels travelled more than 40,000,000 miles in
1951...more than forty million gruelling miles in desert heat
and arctic cold...from sea level to 7700 foot altitudes.

Engines take a beating on P.I.E. routes—the main reason
why long ago, P.I.E. put KYSOR "up front" to keep operat-
ing temperatures on the beam for maximum power output,
longer engine life and fuel savings.

KYSOR serves all 266 P.I.E. tractor units faithfully from
Chicago to the West Coast, helping to maintain the repu-
tation for performance which has made Pacific Inter-
mountain Express one of the great names in the transpor-
tation world.

Perhaps KYSOR can help you save fuel...cut maintenance
costs. Why not?

WRITE TO

KYSOR

Automatic **SHUTTERS**

CADILLAC, MICHIGAN



A brute for power and
performance, the famous
P.I.E. designed "Drome-
dary" shown here is
Peterbilt, powered by
Cummins and KYSOR
Automatic Shutter
equipped. These giants
operate on P.I.E. Routes
west of Denver exclu-
sively.

Legislative Roundup

Continued from Page 55

actual weight if vehicle weighs over 15,000 lb.

MONTANA lowered its registration fees on commercial type vehicles to a flat annual \$10.00 fee. "The vehicle use tax," which practically doubles registration fees and was due to expire in December, was amended and made permanent. New fees for trucks and trailers are on a gross weight instead

of a capacity basis and carry maximum fees of \$240 for trailers and \$320 for trucks between 40,000 and 42,000 lb gross weight. New passenger cars pay a fee of 1½ per cent of factory list price upon initial registration.

NEW YORK's controversial mileage tax provides rates ranging from 6 to 24 mills per vehicle mile for gross rates ranging from 18,000 to 62,000 lb and over. Another new law changes truck and trailer registration fees from 80 cents per cwt vehicle weight to 50 cents per cwt gross weight with resultant higher fees for most vehicles.

NORTH DAKOTA simplified registration fees on all vehicles with an apparent reduction in such fees. However, property-carrying vehicles are assessed a new annual fee of \$3.00 per net ton if gross weight is 24,000 lb or less, and \$5.00 per net ton for gross weights over 24,000 lb.

OHIO truck registration fees were increased about 35 per cent effective until June 30, 1953.

OREGON increased existing mileage tax rates by about one-third. However, this was partially offset by a downward revision of registration fees for some trucks and trailers, and a less severe mileage tax increase for certain buses. Operation of the mileage tax law has been suspended pending the outcome of a referendum expected in 1952, but the registration fee bill was effective Jan. 1, 1952.

SOUTH DAKOTA, which in 1949 imposed an additional 1 per cent sales tax on motor vehicles for veterans' bonus bonds, allowed the tax to expire on retirement of the bonds.

UTAH imposed on non-resident commercial type vehicles a special single trip fee of 3 per cent of the annual registration fee, or in lieu thereof a mileage tax averaging 1 cent per vehicle mile.

VERMONT provided for permit and trip fees payable by heavy property carriers domiciled in states imposing similar fees on Vermont registered vehicles (apparently in retaliation to the New York mileage tax). Registration fees were also increased on all vehicles.

WASHINGTON increased fees for the heaviest vehicles and decreased fees for the lightest ones. Bus registration was amended to eliminate weight fees and to substitute fees similar to those for trucks plus 15 cents per 100 vehicle miles of operation for common carriers.

WEST VIRGINIA repealed the ⅛ cent cargo capacity ton-mile tax on property carriers and changed truck and trailer registration fee basis from rated capacity to gross weight.

Reciprocity

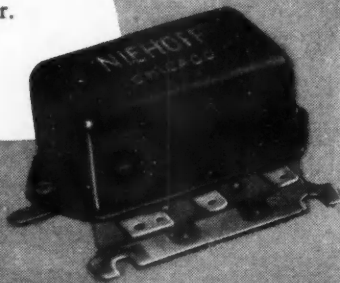
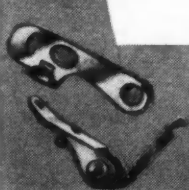
MINNESOTA, NORTH DAKOTA and UTAH have passed more restrictive laws on reciprocity that may have the effect of cancelling existing reciprocal arrangements. IOWA authorized entering into reciprocal agreements with other jurisdictions in lieu of automatic grants formerly given. WISCONSIN requires certain information from owners and operators before granting reciprocity privileges and may suspend such privileges upon weight violations.

(TURN TO PAGE 166, PLEASE)

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warranted ignition parts FOR TROUBLE-FREE SERVICE!

Niehoff Ignition Parts are especially designed to fit every make and model truck in your fleet. And you can count on them for the high quality and precision-engineering you need for dependable, trouble-free service. Every part is backed by a nationwide 4000 mile or 90-day warranty. For long hauls, for short hauls, for the best in ignition choose Niehoff. See your jobber.



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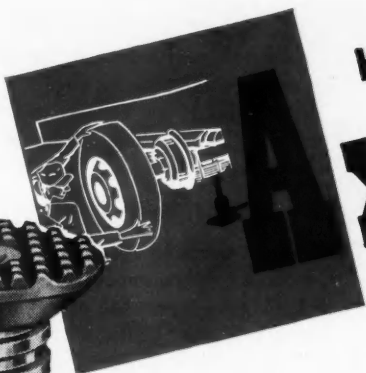
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leak-proof base ■

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AUSCO Jacks

Legislative Roundup

Continued from Page 164

On the other hand, KANSAS with its ports of entry, has broadened its powers to make reciprocity agreements in an apparent effort to improve the reciprocal relations of that state.

IOWA and NORTH DAKOTA permit reciprocal agreements on apportionment of commercial fleet registrations according to mileage operated in each state.

INDIANA and WISCONSIN bills that would have removed all reciprocity on heavier commercial vehicles were killed.

A bill providing for the creation of ports of entry is pending in the MISSOURI legislature.

Anti-Diversion

HIGHWAY users in ALABAMA and GEORGIA were successful in securing legislative approval of constitutional amendments prohibiting diversion of highway funds. These proposals must be submitted to popular referendum at the November, 1952, election.

Sizes and Weights

ELEVEN more states—ALABAMA, GEORGIA, MASSACHUSETTS, MICHIGAN, NEW HAMPSHIRE, NORTH CAROLINA, NORTH DAKOTA, OHIO, WASHINGTON, WEST VIRGINIA and WISCONSIN—increased the length of buses from 35 to 40 feet. NEW HAMPSHIRE, NORTH CAROLINA, NORTH DAKOTA, OHIO, WASHINGTON and WEST VIRGINIA require buses of this length to have three axles.

Laws permitting auto transporters a maximum height of 13½ ft were passed in IOWA, MARYLAND, WEST VIRGINIA and WISCONSIN.

MARYLAND reduced the weight of tandem axles from 44,800 to 40,000 lb, but increased the multiplying factor in the gross weight formula from 750 to 850. Maximum gross weight, however, is limited to 65,000 lb.

MINNESOTA eliminated its formulae and provided gross weights based on axle spacing graduated from 28,000 lb if axles are spaced 4 ft apart, to 66,500 lb if spacing between extreme axles is 42 ft or more, subject to axle weight and vehicle length limitations.

NEVADA increased the weight for tandem axles from 30,800 to 32,000 lb.

NORTH CAROLINA repealed the requirement that the motive power of vehicles or combinations in excess of 50,000 lb gross weight must have a piston displacement of at least 350 cu in., thus leaving a requirement of 300 cu in. for an excess of 40,000 lb. The law was amended to allow buses with three axles to operate at an actual unladen weight of 31,500 lb.

OREGON amended its table of weights based on axle spacing to provide a maximum limit of 76,800 lb instead of 72,000 lb, but limited gross to 60,000 lb except under permit.

TEXAS eliminated maximum gross weight limit of 48,000 lb and provided weights based on axle spacing graduated from 32,000 lb if spacing is 4 ft to 58,420 lb if spacing is 41 ft or more, subject to axle weight and vehicle length limitations.

WEST VIRGINIA eliminated its formula and provided gross weights based on axle spacing graduated from 32,000 lb if spacing is 4 ft to 73,280 lb

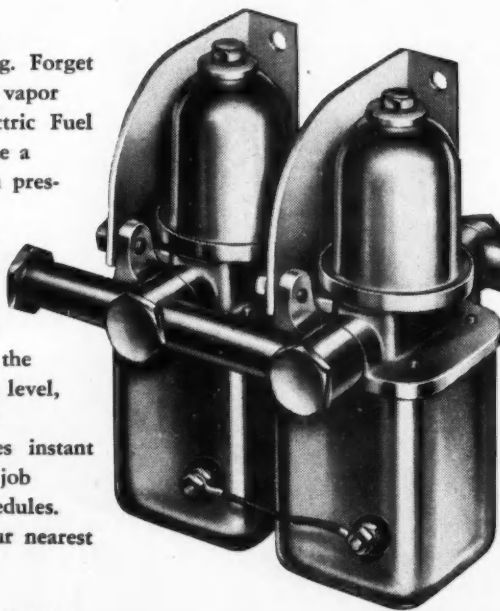
(TURN TO PAGE 168, PLEASE)

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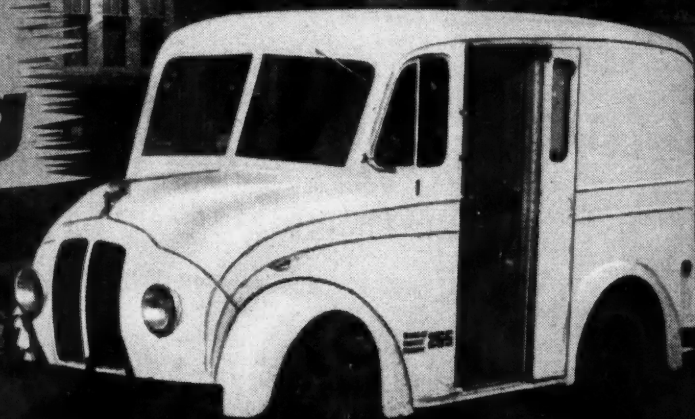
Gatke

BRAKE LINING

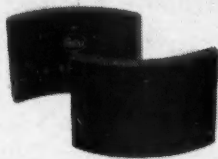
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Legislative Roundup

Continued from Page 166

if spacing is 57 ft, subject to the other limitations including a maximum gross limit of 60,800 lb.

WISCONSIN reduced axle weight limit on Class A highways from 19,000 to 18,000 lb and provided gross weights based on axle spacing graduated from 32,000 lb if axles are spaced 4 ft apart, to 68,000 lb if spacing is 40 ft or more

(subject to axle weight and vehicle length limitations).

WYOMING made slight changes in gross weights for various axle spacing between 11 ft and 56 ft, but the maximum limit in existing law was not changed.

Bills to liberalize weight limits are pending in MISSOURI and PENNSYLVANIA.

Size and Weight Penalties

CALIFORNIA imposed fines graduated from \$10.00 if the excess

weight is 100 to 1500 lb, to \$1000 if excess weight is 12,501 lb or more.

ILLINOIS and MICHIGAN provided penalties of 2 cents per lb where overweight is 2000 lb or less, and graduated upward to 10 cents per lb for each pound of excess weight over 5000 lb.

INDIANA amended penalties enacted in 1949 to provide for impounding of vehicles exceeding size and weight limits until all fines and costs have been paid. In addition to a fine graduated to 10 cents per pound provided by existing law, the operator can be charged with a felony and subject to a fine of \$500 to \$1000 and imprisonment of one to five years. Any owner who is convicted more than thirty times in a year for violation of size and weight limits shall be prohibited from using the highways for thirty days and his certificate or permit suspended for a like period.

IOWA provided penalties for violation of axle weight limits of \$1.00 per 100 lb of excess weight up to 8 per cent and graduated upward to \$8.00 per 100 lb if the percentage of overweight is more than 20 per cent. Slightly heavier penalties are provided for violation of gross weight limits.

MAINE provided penalties graduated from \$20 if excess weight is 1000 to 2000 lb and \$500 and costs of court if the excess weight is 10,000 lb or more.

MARYLAND imposed a penalty of 2 cents per pound if the excess weight is less than 5000 lb, and 6 cents per pound if excess weight is over 5000 lb.

MASSACHUSETTS provided that conviction or violation of weight provisions shall be punished by fine of not less than \$10 for each 1000 lb of overweight, with a maximum penalty of not more than \$500.

MICHIGAN increased penalties graduated from 2 cents per lb of excess weight of 1000 to 2000 lb, and 10 cents per lb for excess weight over 5000 lb.

MINNESOTA prescribed a minimum fine of \$25 if excess weight is 1000 to 2000 lb. If the gross weight exceeds 2000 lb, the fine shall be not less than \$50 for each offense.

NORTH CAROLINA provided penalties of 1 cent per lb for the first 2000 lb of overload; 2 cents per lb for the next 3000 lb, and 5 cents per lb for every pound of overload in excess of 5000 lb.

NORTH DAKOTA law provides for fines graduated from 1 cent per lb of excess weight to 1000 to 2000 lb, and 10 cents per lb for each pound of excess weight over 5000 lb.

OHIO provided a \$25 fine plus \$1.00 per 100 lb of overweight in excess of 5000 lb, but not in excess of 10,000 lb. If the excess gross weight is more than (TURN TO PAGE 170, PLEASE)

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A NEW AEROL PRODUCT**

**THE CLEVELAND PNEUMATIC TOOL CO.
Now Makes and Sells
CLAYBORNE ENGINE STANDS AND DOLLIES**



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No. 200—A Universal Stand, end roll-over, ideal for all types of engines weighing up to 600 lb. Rotates engine full 360°, locks in four convenient positions to handle engines securely for every overhaul operation.

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From a Mack to a Dodge, every Atkinson unit is Cities Serviced for the sake of the truck and the business.

Legislative Roundup

Continued from Page 168

10,000 lb, \$25 fine and \$3.00 per 100 lb of overweight or imprisonment for not more than 30 days.

UTAH provides that violators of weight limit provisions shall be punished by fines of not less than \$50 nor more than \$299, or by imprisonment not to exceed 6 months, or by both.

WASHINGTON provided additional penalties for violation of weight limits

of 2 cents per lb of excess weight up to 5000 lb, 3 cents per lb on excess weight of 5000 to 10,000 lb, and 4 cents per lb if excess weight is over 10,000 lb.

WEST VIRGINIA provided a fine of from \$25 to \$100 for the first conviction of violation of weight limits, plus 1 cent per lb for any weight in excess of 2000 lb over the permissible axle or gross weight. For the second conviction, a fine of from \$50 to \$100 plus 2 cents per lb for any weight in excess of 2000 lb over the permissible axle or gross weight. For a third or

subsequent conviction, a fine of from \$75 to \$100 plus 3 cents per lb for any weight in excess of 2000 lb over the permissible axle or gross weight. In any case, where the gross weight exceeds the statutory limit by 5000 lb or more, the fine shall be 5 cents per lb for each pound of excess gross weight over the statutory limit.

WISCONSIN provided a fine of \$200 for the first conviction of violation of weight limits, plus 2 cents per lb where excess weight is not over 2000 lb, and 10 cents per lb if the excess weight is over 5000 lb. For the second and each subsequent conviction within 12 months, the fine is not less than \$100 or more than \$300, imprisonment for 10 to 30 days, or both fine and imprisonment, plus the monetary penalties for each pound of overweight load provided for the first conviction.

Equipment Requirements

DIRECTIONAL signal devices will be required on all new vehicles in NEW HAMPSHIRE and NORTH DAKOTA after January 1, 1952, and on all right-hand drive vehicles in NORTH CAROLINA. Such signal devices are required in MAINE (on passenger cars only), OHIO and WEST VIRGINIA if hand and arm signals are not visible. ARKANSAS, DISTRICT OF COLUMBIA, FLORIDA and TEXAS require signalling equipment when the steering post is more than 24 inches from the left side of the body or load, or more than 14 feet from the rear of body or load in ARKANSAS and FLORIDA. The ARKANSAS requirement has been held unconstitutional by court ruling. A similar bill is pending in MISSOURI.

PENNSYLVANIA increased the powers of the Secretary in prescribing electrical or mechanical signal devices. A bill is still pending that would require such devices on all new motor vehicles after January 1, 1952.

Safety glass is required in all new motor vehicles sold after July 1, 1951, in TENNESSEE and replacements must be made in safety glass in all vehicles. ARKANSAS and TEXAS also adopted the latter provision.

Mudguards are required on certain vehicles in CALIFORNIA, ILLINOIS, MINNESOTA, NEW YORK, OHIO, PENNSYLVANIA and TEXAS by new laws. Similar bills are pending in MASSACHUSETTS and MISSOURI. (See Dec. CCJ, page 62)

Windshield defrosters are required after October 1, 1951, on all vehicles licensed as commercial vehicles in MICHIGAN.

END

Please Resume Reading Page 56

COMMERCIAL CAR JOURNAL, January, 1952

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for every car,
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Automobiles

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One source for all your lighting needs *plus* solid product quality! These are the things you can depend on when you buy Guide Lamp products . . . things that help you hold down costs and keep your vehicles rolling. Guide makes headlamps, tail lamps, clearance lamps, turn-signal lamps—all kinds of lamps—to light your vehicles from stem to stern. So buy the best for your fleet. Buy Guide.



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Enough Magnusol Concentrate to clean 120 engines and chassis, along with the Magnus Sprayer needed to apply the cleaning solution, will cost you less than \$35. It takes less than 1/2 hour to do the job on a bus or truck. You use unskilled labor for the job. You can easily clean 120 engines and chassis for less than \$1 per job!

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is mixed one part to eight of kerosene or safety solvent. This makes the cleaning solution. You use the Magnus Sprayer to apply this solution at room temperature to all surfaces of the engine and chassis. Let it soak in for about fifteen minutes, and then rinse off with a pressure stream of water.

You get completely clean surfaces, without attack on metal or paint . . . AND NO FIRE HAZARD. There are no unpleasant fumes. There's no waiting or expense for heat.

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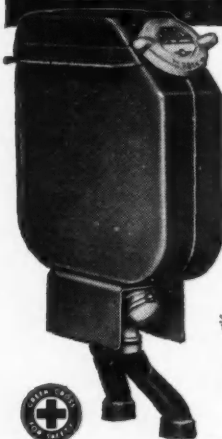
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SANDERS FOR TRUCKS, BUSES, TAXICABS and PASSENGER CARS

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CCJ News Reports

Continued from Page 27

Then call your local scrap dealer. Bids from several will assure a fair price. If you're in a town that has no scrap dealer, try to make arrangements with one in a neighboring city or consult a local farm appliance dealer. All in this category have been advised on proper procedures.

Remember one ton of scrap has the vital ingredients needed to produce four tons of steel.

N. Y. Show Plans Develop

The physical arrangement of the 1952 National Transport Vehicle Show to be held in New York's Columbus Ave. Armory on Feb. 26-28 has been announced by the show's staff. Arrangements are being completed which the management claim will make the exhibit area radically different than other years.

The first two aisles facing the main entrance will be devoted entirely to trucks. Flanking them will be a row assigned to trailer exhibits and surrounding them a show made up largely of active demonstrations.

Sections will be devoted to test and repair, to salvage and safety equipment and to terminal and warehouse equipment. Exhibitors will be coming from as far west as California and Oregon.

Fleet executives who do not receive invitations before Feb. 12, should send a stamped, self-addressed envelope to the Registration Desk, National Transport Vehicle Show, Room 1602, 100 Fifth Ave., New York 11, N. Y.

Truck Tonnage Sets New Mark

In its year-end review, American Trucking Associations, Inc., made known that during 1951 the truck industry:

Handled 137 billion ton-miles of intercity freight, an increase of nine per cent over 1950 and an all-time high in transport history.

Handled in terms of tonnage about 15 per cent more than the industry transported in 1950, which in turn was 25 per cent above 1949.

Added nearly half a million new vehicles to increase the total fleet 5.6 per cent from 8,238,000 to 8,700,000 and in addition bought enough new equipment to retire more than 600,000 old units.

Invested more than \$3 billion in these new trucks and tractors, and in 68,000 trailers.

Gave direct employment to an additional half a million employees, raising the total to approximately 5,500,000—second only to agriculture as an employer.

(TURN TO PAGE 196, PLEASE)

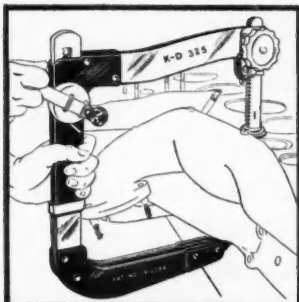


K-D[®] TOOLS

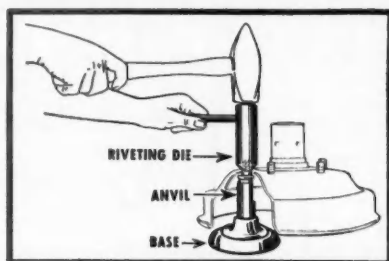
Got these in your toolbox?

Good compressor for BIG trucks

K-D 325... for the **BIG** truck, bus, tractor engines. One man can operate this rugged, deep throated Compressor on most engines (L-head or valve-in-head) with manifolds on. 3 pairs jaws. Wide jaw selection, plus plunger bar adjusting feature makes 325 flexible enough to service valves of any length, in any position.

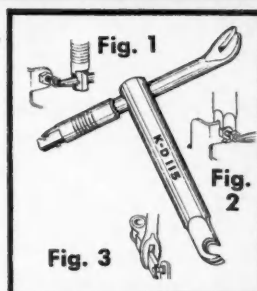


Riveting Die Sets



For removing and installing wheel studs. Designed for shops with an average amount of wheel work. Sets consist of Base, Anvil, Riveting Die. Dies & Anvil tempered, Rockwell tested. No. **S565 Set** for Chevrolet & Pontiac, $7/16''$ stud. No. **S567 Set** for Chevrolet Truck, $9/16''$ stud. No. **S570 Set** for Ford-built cars, $1/2''$ stud. No. **S575 Set** for Ford AA & BB Truck. $3/4''$ stud.

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K-D 115 Universal Ignition Point Aligning Tool... for aligning contact points right in the distributor. Carefully forged and machined to handle all types of points in all types of distributors, including Ford. **Fig. 1:** use on ribbed breaker arm. **Fig. 2:** adjusting a channel type arm. **Fig. 3:** adjusting stationary point.

Keeper inserters - ALL motors

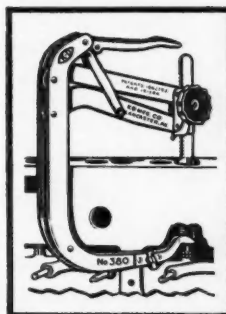


K-D 608... specially designed to replace the **one size** split keeper now used on most all present motors (including Ford & Chrysler motors). Light, easy loading, self supporting.

K-D 605: for handling keepers of larger size than serviced with No. 608. Easy loading, fast, self supporting.

K-D 609: specially designed to handle split collar type keepers used on late Ford trucks (6 cyl. 110 hp., 8-cyl. 150 hp.). Magnetic jaws. $4\frac{1}{2}''$ long.

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CCJ News Reports

Continued from Page 196

Private Carriers' Convention

While the complete plans for the annual convention of the National Council of Private Motor Carriers are not available at press time, the council officers have indicated that attendance and interest in the annual event will more than pass previous years.

H. Scott Byerly, the convention director, said that "Senator Ed. Johnson of Colorado, chairman of the Senate's powerful Interstate and Foreign Commerce Committee has already accepted the Council's invitation to address the meeting at the opening luncheon on Feb. 7. At that time, Senator Johnson should be in good position to discuss the Bricker Report and give some idea of what may be expected in the way of federal motor transport legislation by the 82nd Congress."

The convention will be held in the Hotel Statler, Washington, D. C., February 7-8, 1952.

Illinois Truck Fees Killed

Circuit Court Judge Clem Smith has held that the new increases in Illinois truck fees are unconstitutional and has enjoined state officials from collecting them. The increases were approved last June by the Illinois Legislature. They were to have netted the state \$20 million in 1952. The ruling will be appealed to a higher court, and until then, trucks will be tagged under the old schedule.

Trade Fair Date Set

The International Trade Fair will be held on Navy Pier, Chicago, March 22 to April 6. The executive vice president who is in charge of details and program arrangements for the affair is Colonel John N. Gage, USA (ret.). His offices are located in the Merchandise Mart.

END

Please Resume Reading Page 31

Classified Advertisement

DISTRICT MANAGERS WANTED—Mid-western equipment manufacturer needs district managers for distributor and dealer contact and other field sales work in several territories. Full time traveling. Products are truck equipment, road-building and excavating machinery. Applications are invited from qualified men with field sales experience in these lines. Box 31, Commercial Car Journal, 5601 Chestnut Street, Philadelphia 39, Pa.

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